The Journal of Obstetrics and Gynæcology of the British Empire

VOL. XXII. SEPTEMBER, 1912. No. 3.

Dusée: His Forceps and His Contemporaries.

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A LARGE and valuable collection of obstetrical and gynæcological instruments, formerly the property of the Obstetrical Society of London, has been presented to the Royal College of Surgeons by the Royal Society of Medicine. It includes a great part of the celebrated series exhibited at a conversazione held by the Obstetrical Society at the College of Physicians in 1866. Among them are a formidable array of cephalotribes, an instructive set of obstetric forceps from Dusée-Palfyn's and Levret's, devised in the middle of the eighteenth century, to Simpson's, Aveling's, Barnes's, and Matthews Duncan's, in use when the series was exhibited, and many contrivances invented by foreign obstetricians, such as the elegant pelvimeter made by Professor Rizzoli, of Bologna ("Nuovo Pelvimetro-isterometro," Memorie Chirurgiche ed Ostetriche del Professore Rizzoli di Bologna, 1869). Dr. David Davis's ingenious contrivances, asymmetrical forceps, the blades being uneven, osteotomists, etc., also come under the same category; their use is explained in Dr. Davis's *Operative Midwifery*, a fine illustrated work which appeared in 1845. A considerable number of obstetrical and gynæcological instruments were presented during the past year by Mr. Penrose Williams, of Bridgwater. Among them are certain contrivances, like Marion Sims's guarded tumour hook and several écraseurs for fibroids, of relatively recent invention, now all but obsolete owing to the great progress which has been made in the surgery of fibromyoma of the uterus. Mr. W. Dunnett Spanton has likewise added to the collection, since the last annual show, some interesting gynæcological instruments, amongst which are a few antiquated pessaries.

The above paragraph appeared in the *Annual Report on the Museum of the Royal College of Surgeons of England by the Conservator*, Professor Keith, issued last June. Before the above additions were made the collection of surgical appliances in the College Museum was decidedly poor in obstetrical and gynæcological

instruments, excepting an instructive series of ovariotomy clamps, cauteries and forceps presented by Sir T. Spencer Wells in 1878. The additions from the old Obstetrical Society's Museum include a cephalotribe of the type to which the name of Baudelocque *neveu* is attached. According to the *Transactions of the Obstetrical Society*, Vol. vii, p. 208, Sir Charles Locock presented to the Society's Museum the cephalotribe actually used by Baudelocque, its inventor, himself. It was obtained by Locock from Madame Petitjean. Unfortunately, the cephalotribe added to the College collection, though undoubtedly Baudelocque's instrument, could never have been his property, for it bears the name of the Brothers Lollini, of Bologna, and it undoubtedly formed part of a set of instruments presented to the Obstetrical Society in 1866 by Rizzoli. The fate of the original cephalotribe I have failed to ascertain. It was probably given in exchange to some French Museum, but I can find no record of the fact in the Society's archives. Perhaps some reader of this JOURNAL may clear up the mystery.

Among the other additions of interest is a remarkable instrument, which when displayed in the Obstetrical Society's Museum was labelled "Antique Forceps, No. 2." I have carefully examined it, compared it with drawings in old and modern text-books and atlases, and found that it is an authentic sample of Dusée's forceps.

Dusée, whose name is sometimes misspelt Dusé, Dusè, Duse or Dusse, is closely associated with that public diffusion of the knowledge and use of the short forceps which occurred between 1720 and 1740. The Chamberlens kept their secret well. But when Dr. Hugh Chamberlen, junior, died in 1728, another obstetrician, Drinkwater,* who had used the forceps secretly, dying the same year, Palfyn had made public his forceps or *mains de fer* eight years previously. In 1733 Dusée's forceps was exhibited, not by the inventor in France, but by a Scotchman in Edinburgh. In the course of the same year, but apparently later, Chapman wrote on his forceps, and in the next the posthumous works of Giffard, with full accounts of how his forceps or extractor was used in his own practice appeared, edited by a colleague.

Thus Dusée and his forceps are subjects of high interest to the obstetrician. The forceps now in the Museum of the College of Surgeons will first be described, and Butter's remarkable account of it then given in full. A brief sketch of the Chamberlens, as gleaned from the writings of Aveling, Norman Moore and Gordon Godwin will follow. Then I will add quotations direct from the original writings of Chapman and Giffard, contemporaries of Dusée, and

* Robert Wallace Johnson (*A New System of Midwifery*, 1769), inventor of the perineal curve, had in his possession a forceps which had been used by Drinkwater who was in practice as early as 1668 and died in 1728.

show what authorities have had to say concerning Dusée, his relations to Palfyn, another of his contemporaries, and his claims to be regarded as a man justly prominent in the history of the forceps.

The Forceps in the College Museum.

The Dusée's forceps in the Museum of the College of Surgeons (Figs. 1 and 2) weighs 1 lb. 6½ oz., or 640 grammes, and measures 16 inches, or 40·5 cm., in length. Each blade is a solid piece of elastic steel. In the illustration to Butter's report (Fig. 3) the length is reduced to 5¼ in., or about one-third. The blades measure 7 inches, or 17·7 cm., to the upper lock, and 9¼ in., or 23·5 cm., to the lower lock. There is reason to believe that it is the identical instrument figured by Butter's artist ("*R. Cooper fecit*"). It is true that its handles turn up a little more, but the artist might have been inaccurate in this respect. The blades appear identical, both are concave at the termination, the screw is the same although its head is drawn a little out of perspective, and the drawing represents the metal around the lower screw hole as coarsely cut and bevelled, precisely as is seen in the forceps in the Museum here photographed. Ingerslev's (Fig. 5) is not the same, being shorter and different about the lower screw holes—but the artist here again might have been inaccurate. The drawing was probably taken from Kilian's *Atlas*, presently to be noted.

I have tested both locks and they appear to work satisfactorily. In one photograph (Fig. 1), as in Butter's drawing, the screw pivot is seen applied to the upper lock. The drawings of Dusée's forceps in atlases and monographs on obstetrical instruments make the screw holes of the lower lock too small. In the forceps preserved in the Museum the holes are ¼ inch, or 6·3 millimetres, in diameter, and the screw fits into them perfectly. As I cannot find a drawing of this forceps with the screw fitted into the lower lock elsewhere, I have added the second photograph (Fig. 2).

I have corresponded with the curators of Scottish museums about Dusée's forceps. Mr. Kinghorn, writing from the Hunterian Museum, Glasgow University, informs me that there is no sample of this instrument in that collection. Professor Arthur Robinson, in reply to a similar enquiry, states that there is no Dusée's forceps in the Museum of the University of Edinburgh. Dr. R. W. Johnstone has reminded me that that University has smaller museums in its special departments, and that among them is an obstetrical collection which possesses two Dusée's forceps. He has very kindly forwarded to me photographs of the two instruments. I find that one is smaller and narrower than the College of Surgeons specimen and bears a different screw. It is, as Dr. Johnstone has assured me, the same which is figured in Sir Alexander Simpson's Address, to which I shall presently return. The second forceps, in

general configuration, corresponds exactly to the College specimen. But it bears the name of a maker, "Still," clearly not a Frenchman. The College specimen bears *no* name. Again, each blade is distinctly *convex* at its extremity. In the College specimen (Fig. 1) a distinct *concavity* is a prominent feature. It tallies with the drawing illustrating Butter's report (Fig. 3). "*A* is the Extremities (*sic*) of the Blades *made more concave in the Middle than is necessary to fit them to the Surface of the convex Head of the Child, in order, as Mr. Dusée said, to hinder them to compress the temporal Arteries.*" Thus Butter lays stress on an essential feature of this forceps as originally designed by Dusée. Lastly, the Edinburgh forceps is more highly finished, and the distance between the upper and lower locks is distinctly greater than in the College specimen, which, once more, accords with Butter's drawing. Hence we may reasonably conclude that this Edinburgh forceps represents an improved instrument constructed by a British maker after the directions of Butter, who records his objections to the concavity at the end of each blade, or of Smellie himself, who, it seems, employed Dusée's forceps before he designed his own with the pelvic curve.

Professor Paul Bar, in reply to enquiries made by myself about French museums, writes (August 20 1912): "J'ai fouillé les collections à la Maternité et à la Clinique. Nulle part il n'y a de forceps de Dusée!" M. Collin, instrument maker in Paris, possesses a large collection of forceps, but he recently informed Dr. Bar "nous ne possédons pas le forceps de Dusée."

Professor Kouwer of Utrecht informs me: "I have found a forceps in Mulder's collection, which is in my clinic, that *almost* answers to the description and the picture of Dusée's forceps according to Mulder's book, but not quite."

As so many references to Butter's report are to be found in old and current works on midwifery, I think that a reproduction of the report in full may prove of interest to obstetricians. The book is not accessible to everybody as it is only to be found in a few medical libraries.

Butter's Report on Dusée's Forceps, 1733.

The volume from which I have taken this report is unmutilated. It belongs to the Museum of the Royal College of Surgeons. I reproduce the words on the title-page:—

Medical Essays and Observations. Revised and Published by A Society in *Edinburgh*. Volume III. The Second Edition corrected. Edinburgh: Printed by T. and W. Ruddimans, &c. M.DCCXXXVII.

Butter's paper, p. 322, will now be given in full. It was read in 1733.

The Description of a Forceps *for extracting Children by the Head when lodged low in the* Pelvis *of the Mother; by Mr.* Alexander Butter *Surgeon in Edinburgh.*

The *Forceps* for taking hold of a Child's Head, when it is fallen so far down among the Bones of the *Pelvis*, that it cannot be pushed back again into the *Uterus*, to be extracted by the Feet, and when it seems to make no Advances to the Birth by the Throws of the Mother, is scarce known in this Country, though Mr. *Chapman* tells us, it was long made use of by Dr. *Chamberlane* who kept the form of it a Secret, as Mr. *Chapman* also does. I believed therefore that a Sight of such an Instrument which I had from Mr. *Dusè* (*sic*), who practises Midwifery at *Paris*, and who believes it to be his own Invention, would not be unacceptable to you, and the Publication of a Picture of it may be of Use to some of your Readers.

Tab. V. *Fig.* 4 represents this Instrument seen obliquely, of one third of its real Dimensions. [Fig. 3 in this communication, same scale.]

A. Is the Extremities (*sic*) of the Blades made more concave in the Middle than is necessary to fit them to the Surface of the convex Head of the Child, in order, as Mr. *Dusè* said, to hinder them to compress the temporal Arteries.

B. Is the convex Side of the one Blade.

C. The concave Surface of the other.

D. The Hinge where the two blades cross.

E. A large flat Button of a Screw, which serves as an *Axis* to the Hinge and can be taken out at Pleasure.

F. A second Hinge by which the Blades can be joined when the Child is higher up than can be conveniently reached by the Instrument, when the other Hinge is employed.

G.G. The Handles.

When this Instrument is to be used, the *Axis* of the Hinge* is to be taken out, and each Blade, being directed by one Hand in the *Vagina*, is to be introduced separately along the Side of the *Vagina*, and betwixt it and the Side of the Child's Head, as far as immediately above the Ears, then the two Blades of the Instrument being crossed, the *Axis* is put into the Hinge, which the Operator finds most convenient to employ, after which the Child's head is to be taken firm hold of, and the Operator pulling by the Handles, extracts the Child.

I think Mr. *Chapman* is in the right to desire the *Axis* not to be put in, for it is very troublesome to take out and put in again, when any (*sic*) of the Blades quit their Hold, and the Instrument can easily be managed without it, in extracting the Child in the Manner mentioned; and in several Cases where it may be requisite to dilate

* "As we should say, the pivot of the lock." Sir Alexander Simpson.

the lowest Part of the Passage at the same Time that the Extraction is making, the Blades of the *Forceps* require to be separated, and are not to be crossed or moved upon a Hinge.

You'll easily see, that often when the Head of a Child is a little too far foreward on the *Ossa Pubis*, or turned too far backwards, that one Blade only of this *Forceps* can be employed to bring it to a right Situation, and to assist the Birth.

Such is Butter's report. We must bear in mind certain passages when we peruse Chapman's writings later on. Butter exhibited the forceps in 1733. In that year Chapman issued the first edition of his *Essay*.

Who was Dusée?

Of the man himself, little is recorded. In Gurlt and Hirsch's *Biögraphisches Lexicon der Hervorragenden Aerzte aller Zeiten und Völker* (1885), his name is mis-spelt "Dussé" at the head of the article devoted to him. That article begins by stating that the name of this Parisian obstetrician of the 18th century is recorded in the history of forceps because he was the first to modify Palfyn's instrument so as to make it really of service for its purpose. Then follows a description of the two forceps. The lexicographer states that Dusée's addition of a screw to the blades in 1734 "naturally put an end to the trade-secret (Geheimnisskrämerei) of Chamberlain's forceps." Then the article adds: "It is most astonishing that the description and portrayal and consequently the popularization of the forceps is to be traced not to France but to England." Butter is quoted in explanation. Dusée, the article adds, never wrote anything about his forceps. It is known that he laid before the French Academy a work advocating circular friction of the gravid and parturient uterus through the abdominal walls as the best method of checking hæmorrhage, and that he died in 1734. When we note the date of Butter's report, it would seem that Dusée may have died before he had time to write about his forceps. Then, as Aveling said of Pugh, who introduced the pelvic curve (before 1740) but did not publish an account of his forceps till after those of Smellie and Levret had been made known, publication was expensive in those days. Dusée may, too, have had reasons for fearing to publish an innovation through the medium of the very few societies and journals then in existence.

Dusée's Pupil De Wind and His Forceps.

Mulder, it will be seen, shows that Paulus de Wind was a pupil of Dusée's, and furnished Mulder with measurements of his teacher's forceps. Dr. Paulus de Wind, member of a medical family, studied, Gurlt and Hirsch inform us, in Leyden in 1730, and in Paris in 1734, and wrote a dissertation on abortion in 1735. Later on he

designed a vectis. But Mulder, in his *Historia Forcipum et Vectium*, of which more will be said, figures a forceps (Pl. III, Figs. 11, 12)* designed by De Wind, which we reproduce (Fig. 4). Mulder thus describes it (*loc. cit.*, p. 41): "Doctiss. PAULUS DE WIND, Anat. Chir. et Artis Obstet. Lector Medioburgensis, ex praecepto CHAPMANNI separata potius Brachia, quam conjuncta, ad Caput Fœtus extrahendum, in usum esse vocanda sibi persuadens, in eo sedulo incumbebat, ut talia sibi compararet, ad dimensiones Pelvis Maternae and Capitis Foetus, quantumpote formata. Haec sua inventa circa annum 1752 publici juris fecit. Instrumentum illius Viri constabat ex duabus laminis chalybeis, non elasticis [elasticas enim magis ad resultandum aptos esse censebat; involucrum rejiciebat, quia crassities inde citra necessitatem augebatur. *Footnote*], nullo involucro praeditis, ubivis ejusdem latitudinis, ad unum extremum incurvatis, quo Caput amplectantur. Ad alterutrum latus Capitis istius modi laminam introducebat, et singulâ manu singulam retinens illarum ope so Foetum feliciter eduxisse testatur.

De Wind seems to have used his curious forceps a great deal, for he changed the length of the blade four times (8, 9, 9¼ and 9½ inches), ultimately adopting the longest measurement 9½ inches. The breadth was in all three-quarters of an inch. It appears to be the smallest forceps ever constructed.

I have introduced Kilian's drawing of De Wind's forceps because it is better than Mulder's.

Thus Dusée's pupil, De Wind, thought that the curve in his teacher's forceps was too abrupt, and Chapman and Butter were of the same opinion. But Chapman and Giffard adopted a medium curve, as in the Chamberlen's forceps, whilst De Wind went too far, making the curve too wide. Yet he seems to have delivered the fœtus *feliciter* somehow.

Aveling, in his paper on "The Curves of the Midwifery Forceps—Their Origin and Uses" (*Trans. Obstet. Soc.*, Vol. xx, 1878, p. 133), gives three diagrams to show why a blade cannot be easily introduced if its curve be too abrupt or too open. No doubt, that fact was generally recognized in 1878, but it was not so in Dusée's days. Yet the Chamberlens before Dusée and De Wind and the later English obstetricians understood what the right head-curve should be.

THE CHAMBERLENS: THE FORCEPS IN THE DAYS THAT IT WAS KEPT SECRET.

In considering the question of the making public of the forceps, so closely associated with the name of Dusée, it is impossible to avoid dwelling for a while on the Chamberlens who kept it secret. Full details of the "Asclepiad family" are to be found in the works

* Also figured in Kilian's *Armamentarium Lucinae*, pl. xv, fig. 6.

of Aveling and the more recent articles on the family in the *Dictionary of National Biography* by Norman Moore and Gordon Godwin.

William Chamberlen, a Huguenot refugee from France, and probably a surgeon, settled in Southampton in 1569. He had two sons, both christened Peter. The elder Peter practised first in Southampton, came up to London in 1596, and was admitted into the livery of the Barber Surgeons. With his quarrel with the College of Physicians and his imprisonment we need not concern ourselves. We must bear in mind the fact that he was a distinguished obstetrician who attended Anne of Denmark and Henrietta Maria, that is to say, he was present to assist the Court midwife in case of need. The calling in of a surgeon or "man-midwife" direct, without the aid of a female expert, was not in fashion until Louis XIV employed a doctor for the La Vallière in 1663. There can be little doubt that Peter the elder was the inventor of the short forceps. In reference to Dr. Peter Chamberlen, Smellie wrote of "Peter the uncle's invention," a statement supported by evidence derived from other sources. He died in 1631. Peter the younger (1572—1626) his brother and namesake, also practised obstetrics and became a Barber-Surgeon. He attempted, without success, to organize the London midwives. Peter the younger's son, always distinguished as Dr. Peter Chamberlen (1601—1683), unlike his predecessors, was fully qualified. Educated at Emmanuel College, Cambridge, he took the degree of M.D. of Padua in 1619, and was afterwards incorporated at Oxford and Cambridge. He was admitted a Fellow of the College of Physicians in 1628. Like his father, he failed in a scheme to organize midwives. He mixed himself up with many other projects, political, religious and social, yet he prospered, and died at Woodham Mortimer Hall, Essex, in 1683. The famous set of forceps now in the Library of the Royal Society of Medicine was discovered there in 1818. They show progressive improvements, but as to which particular member of the family such improvement was due history is silent.

Aveling quotes a document addressed to the Archbishop of Canterbury by the College of Physicians concerning Dr. Peter's scheme for the instruction of London midwives. There is a reference to "the use of iron instruments." "The date of this document is *circa* 1640, and there can be little reason to doubt that the 'iron instruments' mentioned referred to his forceps" (*loc. cit.*, p. 132). Thus the Chamberlens were using their forceps in 1640, so that they must have introduced the instrument into their practice much earlier.

Dr. Peter's son, known as Dr. Hugh the elder, was born about 1632; something will have to be said about the date of his death. There is no clear evidence that he ever took or obtained a degree in

physic (G. Godwin). Like his father, he entered into all sorts of schemes, but they brought him to poverty.

In 1670 Dr. Hugh Chamberlen the elder was in Paris. It is said that he offered to sell his secret to the Court physician of the King of France. But he failed, after indiscreet boasting, to deliver a rachitic dwarf confided to him by Mauriceau. Two years later, in 1672, Dr. Hugh senior published a translation of Mauriceau's treatise on midwifery. In his introductory remarks he deprecated Mauriceau's advocacy of destructive instruments, and made the important statement that his father Dr. Peter, his brothers Paul* and John and himself had long practised a way to deliver women, saving them and also the children. He declined to publish the secret because his father and brothers were living. His father before, and Chapman after him, put this ethical question differently in their writings. Dr. Hugh, senior, was called in to attend Mary of Modena at the birth of the Old Pretender, a fact which shows that he must have been held in high public esteem. His wild schemes, or his Jacobitism, ruined him, and he retired to Amsterdam where he practised midwifery. He left England, it seems, in 1688. A few years later he communicated his secret, somehow, to Rogier van Roonhuysen. The remarkable history of the secret as kept by van Roonhuysen and betrayed, it is said, when he turned aside from a labour to speak to a Burgomaster, and the strange regulations of the Medico-Pharmaceutical College of Amsterdam about the secret do not concern us. When Van de Poll† and De Visscher bought the secret from the daughter of a doctor who used the forceps, intending, on principle, to publish the secret, and received a single blade, the forceps of Palfyn, Dusée, Chapman and Giffard had long been known. Rathlauw's exposure of van Roonhuysen was made public in two books published in 1747 and 1754, the era of Pugh, Smellie and Levret.

We must return, however, to Dr. Hugh Chamberlen, senior, for among other things his last days, though the precise date of their termination is unknown, were synchronous with the days of Palfyn and Dusée himself.

"Although every search has been made, nothing can be discovered with regard to Chamberlen's latter days" (Gordon Godwin), but he was living (as a legal document testified) at the end of 1720. Now, it was in 1720 that Palfyn exhibited and explained his *mains de fer* in Paris, the first public demonstration of any form of "saving" midwifery forceps.

* Paul (1635—1717) had a large obstetric practice; he was given to open charlatanism. John (died 1700) also practised midwifery with success.

† Van de Poll ultimately settled in England, assumed the name of Dawkins, and practised in Canterbury (Churchill, *Operative Midwifery*, 1841, p. 76). Rogier van Roonhuysen, not Hendrik, his father, was the "hero of this" Dutch episode.

The last of the Asclepiad family, Dr. Hugh, junior (1664—1728), son of the elder Hugh, graduated M.D. at Cambridge in 1687. He had a large medical and obstetrical practice, and was a great "social success." We need not trouble about his effigy which "disfigures the north choir aisle of Westminster Abbey" (Norman Moore), bearing Bishop Atterbury's epitaph. We must, on the other hand, bear in mind that Dr. Hugh Chamberlen, junior, died in June 1728, and was recorded as the last of the Asclepiad family who practised midwifery in England, except Dr. Walker, of Great Suffolk Street, Dr. Peter's grandson. In the same year, 1728, died Dr. Drinkwater, who, as Dr. R. W. Johnson afterwards made public, used the forceps as early as the end of the 17th century. Space will not allow us to dwell on that obstetrician's claims.

In dismissing the Chamberlens—except their dates which we must keep in our memory—we cannot help remembering their secrecy and the queer episode, never cleared up, of the sale of the secret to a Dutchman and its after-history. Their advocates may justly note that it was once quite usual for medical men to keep such secrets in their families. More than one Chamberlen, as we have seen, was a university man. Thus a man-midwife in the 17th century might be a "gentleman of parts who had received the benefits of a genteel education" as folks would have said in those days. The Chamberlens must surely have been men of mechanical ability.

Secrecy, however, is bad, and, like all bad things, its demoralizing effect tends to intensify itself. Norman Moore doubts whether the Chamberlen family may be "credited with any invention at all, and from the purely commercial spirit in which they treated their knowledge, it is possible that it was originally acquired by purchase from some obscure and forgotten practitioner." Dr. Peter clearly, as Moore shows us, did not pull well with his colleagues of the College of Physicians. He published in 1647 *A Voice in Rhama, or the Cry of the Women and Children echoed forth in the Compassions of Peter Chamberlen.* "In that pamphlet," says Moore, speaking of Dr. Peter as De la Motte spoke of Palfyn, "he can find no better excuse for keeping secret knowledge capable of saving hundreds of lives, if widely known, than that 'the draper is not bound to find cloth for all the naked because he hath enough in his shop, nor yet to afford it at the buyer's price.'"

The "shop" parallel appears to us very indiscreet, and Dr. Peter graced his cause but little in speaking for himself in his *Compassions*, but because a man is a bit of a snob it does not follow that he is necessarily devoid of the inventive faculty.

PALFYN, 1720.

Thus, thanks to the labours of Aveling and other writers, it is clear that from early in the 17th century the Chamberlens,

beginning with Peter the elder, used in secret the forceps which they probably invented and certainly improved. It will be shown that other obstetricians were using forceps secretly in this country—one, Drinkwater, in the later part of the 17th century, others, Giffard and Chapman early in the 18th. But Ingerslev is apparently correct when he insists that the first man to exhibit a "safe" forceps and explain its use, the saving of the child as well as the mother, was Palfyn.

The life of Palfyn (1650—1730) is better known than that of Dusée. From his student days he was an enthusiastic anatomist, and when teaching anatomy at Ghent he got into trouble for body-snatching. He studied in Paris and also in London. What he learnt in the British Metropolis is not recorded. It is quite possible that he heard of the Chamberlens.* In 1710 the first edition of his work on surgical anatomy was published at Leyden. He came to Paris in 1720 to superintend a French edition, and exhibited his forceps at a meeting of the Académie Royale des Sciences. In 1723 the instrument received the approbation of the Faculty in Paris. These *mains de fer*, neither crossed nor jointed, are familiar to the readers of illustrated works on obstetrics. Levret, in a later generation, admitted the merits of Palfyn, who was held as of small account by his contemporaries and by Portal and others after him. He wrote several works, yet in none does he make any mention of his forceps or *mains de fer*, although he exhibited them before what was in his days the highest medical tribunal in the world. It was Heister, of Helmstadt, a friend, who first described and figured Palfyn's forceps in a published book (1724). He did not believe much in its utility nor even in that of his own modification. In a depreciatory paragraph in a second edition (1743) quoted by Ingerslev, Heister stated that he had tried the forceps and saw little advantage in them. Gilles le Doux, of Ypres, modified Palfyn's forceps by uniting the handles with a cloth; he claimed, unjustly it appears, complete priority over Palfyn.

In a passage, often quoted, in his *Traité Complet des Accouchements* (Edition of 1721), De la Motte spoke strongly against secrecy in obstetrical practice, picking out "a certain surgeon from Ghent" who "a few years ago" exhibited his forceps at Paris. De la Motte made out, in speaking about the instrument to a "Maître Chirurgien de Paris," that its use was impossible, but that if any man had actually invented an instrument of real value in difficult labour and kept it secret he deserved a fate akin to that of Prometheus.

Why de la Motte complained that a man who exhibited his forceps in public had made *un secret de ces instruments*, we cannot

*Levret, it appears, according to Sir Alexander Simpson, once stated that Palfyn had a sight of Chamberlen's forceps when in London.

understand. There is some mystery about the expression "a few years ago," *il y a quelques années*, as De la Motte's work was published in 1721 and the forceps was exhibited before the French Academy in 1720. Perhaps Palfyn had shown the forceps privately to a French obstetrician before that date. The most remarkable feature about De la Motte's diatribe against secret obstetrics is the well-known fact that the Chamberlens, and, as will be seen, others, had for long used the forceps, and that before De la Motte's death in 1737 one of his countrymen, Dusée, had contrived a forceps and made it known through a foreigner in a foreign land. Did De la Motte really make an erroneous statement unwittingly or was he aware that an efficient forceps was already in use? In the latter case he may have meant to hit at somebody else and not the "certain chirurgien de Gand." We shall see that Petit believed that Palfyn stole the design from Douglas.

Palfyn cared for little except teaching and gratuitous practice amongst the working classes. It is not surprising therefore to learn that he died poor and forgotten. The date of his decease, 1730, is important in relation to Dusée.

Chapman and His Forceps, 1733.

Let us now turn to Chapman, a distinguished contemporary of Dusée. The first edition of his *Essay on the Improvement of Midwifery* I find, from a copy in the Museum of the Royal College of Surgeons, bears, on the title-page, the date 1733, and at the foot of the dedication to Dr. E. Milward, "Drake Street, Red-Lyon (*sic*) Square, Aug. 20 1733." The dates are in white and black, otherwise after a perusal of this interesting *Essay*, we might distrust a man who had such a good opinion of himself as to write in his preface:

"If I mistake not I am the first *Englishman* that has written originally and professedly on this Subject, one only excepted, who wrote about a *Hundred* Years ago, and that very indifferently." He adds that "we are in this branch very much beholden" to works "only translated from the *French*."

Still Chapman was a man of note. In his first chapter *Of a Child presenting with its* Head, he dwells on "the Method of saving a Child whose Head presents, and lies fixed in the *Pelvis*, and must of necessity be born that way." There are two ways of saving it, "*viz.*, Either by slipping a *Fillet* over the Head, in such a manner as to extract the Child thereby (which I have sometimes done with great success), or by taking the Head with the *Forceps*." Neither, he adds, can be of use "if the Head does not lie very low." As for the fillet, "I must beg leave to be silent in, as being entirely an Invention of my own," and claims Dr. Chamberlen's secrecy as a precedent. "As to the *Forceps*, which, I think, no Person has yet any more than barely mentioned, it is a noble Instrument to which

many now living owe their lives, as I can assert from my own Knowledge and Practice." Of course, when we remember that Dr. Chamberlen's forceps were probably in use in 1640, "yet" and "barely mentioned," written in 1733, sound sarcastical. It is odd that Chapman should word the sentence above quoted in that manner directly after his open declaration that he has followed Chamberlen's example as to his (Chapman's) fillet. Chapman very "barely mentions" his wonderful fillet. Then he immediately proceeds to proclaim his forceps and explains its use, which he does very well indeed (p. 13). Let us note these words in the edition of 1733: "It is much better, as I have just observed, that the two parts of the *Forceps* should not be joined or fixed together by a Screw."

At page 15 we find a very important statement: "For many Years my *Forceps* happen'd to be made of so soft a Metal as to bend or give way, or suffer some alteration in their *Curve*." Once more I may note these words were written in 1733. Chapman then relates how he fashioned a movable screw which could be taken out. "This screw I happened to lose in the *Cloths* at the Delivery of a Woman." All did well, he was sent for to another case "presently after" and "being indeed forced to make the Trial, found that the Instrument did its Office much better without the *Screw*,* or the two parts being fixed."

The second edition of Chapman's *Treatise* appeared according to the title-page in 1735, and the dedication ends, "Orange-Street, Red Lion (*sic*) Square, 1735. At p. 27 the author apologizes:—"I must acknowledge myself short, in not giving the Figure of my *Forceps* in the former Edition. I was not indeed so thoroughly sensible of this Defect till I found my *Essay* honourably mentioned by a learned Society established at *Edinburgh* for the Improvement of *Physic* and *Surgery*, in the *Medical Essays and Observations*, etc., Vol. iii, Art. xxxi. As these Gentlemen, by saying I have not given a Description of that Instrument, as I used it, seem to insinuate that something is wanting to render this Work more complete and satisfactory; I have now subjoined an exact Draught of my *Forceps*, which is very little different from that used by the late Mr. *William Giffard*; and which I apprehend too of a Make preferable to those represented Table V of the *Medical Essays*, etc., as taking better hold of the Child's Head than can be done by an Instrument whose *Curves* are broad and not divided and formed into a Sort of Ring as in the Figure here exhibited; in which the most protuberant Parts of the Head lie naked, whilst the *Extractors* last mention'd the whole is covered and the Instrument of course takes up more room." What this somewhat clumsily worded criticism refers to is evident. For Chapman is quoting from the same volume as that which contains

* Butter (*vide supra*) was entirely in agreement with Chapman about the screw or "axis."

Butter's report on Dusée's forceps. At p. 403 of the *Medical Essays* the "insinuation" will be found. "He (Chapman) condemns the Make of the *Extractors* he has seen others employ but does not describe his own, nor his Manner of slipping a Fillet over the Child's Head." With the latter reproach we must all agree.

Again, "those represented Table V of the *Medical Essays*" are Dusée's, the forceps which we reproduce, Fig. 3.

So much for the relations of Chapman to Dusée, chronological and professional. The drawings of the former's forceps, locking after the English fashion without a screw, are instructive.

Butter, we saw, reproached Chapman for keeping the form of his forceps a secret. In 1736 John Douglas, Surgeon to the Westminster Hospital also took Chapman to task for having kept his secret so long. Douglas wrote after the second edition of Chapman's *Treatise* had appeared (1735). We cannot be surprised if, as seems clear, Douglas disliked the tone of Chapman's writings. A man who openly declares that he keeps his fillet secret, but publishes his forceps, naturally lays himself open to criticism. A century later Von Siebold implied that Chapman was really forced to declare himself about his forceps by Butter when that surgeon made Dusée's instrument public.

The following important paragraph in Chapman's *Treatise*, Second Edition, Introduction, p. 5, shows that author's latest attitude to the Chamberlens and their secret:—

"The chief Books on this Subject extant in our Language are Dr. *Chamberlen's* Translation of *Mauriceau* and the Translations of *Dionis, Daventer (sic)*, etc., which I shall have occasion to mention hereafter; and shall only observe here, that the Secret mentioned by Dr. *Chamberlen* by which his *Father*, two *Brothers* and himself saved such Children as presented by the Head, but could not be born by natural Pains, was, as is generally believed, if not past all Dispute, the Use of the *Forceps*, now well known to all the principal Men of the Profession both in Town and Country."

Thus Chapman publishes the fact that the forceps was in general use in 1735, and implies that he did not learn its use from the Chamberlens.

Giffard and His Forceps, 1733—1737.

William Giffard was a distinguished contemporary of Dusée. He is honourably mentioned in the Scotch *Medical Essays and Observations*, Vol. iii, p. 400, in a summary of medical work "since the Beginning of the year 1733"—the edition here quoted from was published in 1737,* but the summary was apparently prepared and

* It speaks of "Dr. *Hody*, the editor of Mr. *Giffard's* Book," which appeared in 1734, the year after Butter exhibited Dusée's forceps. The reference may have been added in the second edition of *Medical Essays*.

read at the end of 1733 or early next year. This summary makes mention of Giffard's "extractor." We must, however, turn to "*Cases in Midwifry* (*sic*), Written by the late Mr. William Giffard, Surgeon and Man-midwife. Revis'd and Publish'd by Edward Hody, M.D., and Fellow of the *Royal Society*." The copy in the Library of the College of Surgeons is in good preservation. The title-page bears the date 1734, and Hody's Dedication (to John Hollings, George the Second's Physician) is dated "*London, July* 30, 1733," Hody stated that Giffard "was a plain Man, remarkable for an honest frank Behaviour." Hody "could wish indeed to have found his Language more correct;* but it is with Books as it is with Men, we ought principally to regard the *Use* they are of to Mankind." Hody's ethics were sounder than Chapman's.

Opposite the first page of Giffard's *Cases in Midwifry* is a plate representing "*Mr. Giffard's Extractor*" and "*The Extractor as improved by Mr. Freke, Surgeon to St. Bartholomew's Hospital.*" These plates were prepared in 1733 at the latest, and published in 1734. The "extractors" are midwifery forceps. Chapman (*loc. cit.*, 2nd ed., p. 28) admits that his forceps were modified from Giffard's. Whilst Chapman contrived the English lock, devoid of a screw or pivot, much as it is now constructed, Giffard, according to the drawing of his instrument, had already discarded the pivot, but had fixed a short catch on the inner side of each blade immediately below the hinge. In Giffard's forceps, as in Chapman's, the handles bear hooks (not rings) which turn inwards, whilst in Dusée's the hooks are everted, as the drawings Figs. 1, 2, 3 and 5 show, later French obstetricians adopting that pattern. But whilst Freke, like Chapman, made his forceps with a simple English lock, the hook on one blade served as "a blunt Crotchet," and on the other bore "a Flap that shuts down and covers a sharp Crotchet."

Two hundred and twenty-five cases are reported in full in Giffard's work. The date of the first is "January the 5th 1724–5," of the last October 17 1731, two years before the exhibition of Dusée's forceps in Edinburgh. On September 12 1725 Giffard attended a case (IV) where the head was "engaged and locked in the passage." After waiting with "Patience," he noted that "I was now able to take hold of the Head and soon released it out of Prison" (*loc. cit.*, p. 11). It is not clear whether he applied his "extractors" as he called his forceps, but as Hody said apologetically his language was not always correct. Case XIV is dated April 8 1726. There was a lingering second stage. Giffard used "my Extractor," but was not able to fix it, so he perforated and delivered (p. 30). Case XXIII

* The heading of "Case LXXXVII, *A Delivery where the back part of the Head was sunk in the* Vagina *and there it stuck*," is not "correct" in an eighteenth century sense, but is quite good enough for its purpose. The book was published before Johnson (Samuel, not Robert Wallace who added the perineal curve to the forceps) introduced a style which played havoc with our language.

occurred on June 28 1728; the child "sticking in the Passage," as the heading states, "I passed my Extractor and drew it with much difficulty forwards without the Labia, and then taking hold of the Head on each side with my hands (which cannot be done whilst it lies in the vagina) I drew the Shoulders out; the other parts readily followed. . . . The Child was born alive. This Case proves that a Child presenting right, but sticking in the passage may be brought alive (I won't say always) without either the use of Hooks, or lessening the Head, contrary to the opinion of most former Writers" (pp. 48–9). One month later (July 29 1728), in Case XXVI, "where the Head stuck in the Passage," Giffard applied his extractor, but one blade, being already cracked, broke and "he was forced to send home for another." When it was brought to him he adjusted the forceps and delivered the child alive. In conclusion, he states that he published that case to show that the arrested head "may by a proper Instrument be brought out, without destroying the Child with the pernicious use of Hooks." In later cases recorded in the work the forceps was often employed.

Thus Giffard's forceps were in active service in 1726, were doing good work in 1728, and were reported in print in 1734 (Giffard died March 6 1730–31 according to Hody). Giffard apparently never used Freke's forceps which is figured in his *Cases in Midwifry*. In his last instrumental labour (CCXVI) not long before his own death he speaks, as he spoke in relating Case XIV and all others where the forceps was applied, of "my *Extractor*." Hence we may assume that the drawing of Freke's forceps were inserted by the editor, Dr. Hody. I can find but one reference to "Dr. *Chamberlain* [the most noted Practitioner in Midwifry in his time in *England*]," but it is in respect to the administration of "a carminative Clyster and an Opiat Draught," which was the course "Chamberlain" (which?) "always pursued when the pains were irregular and weak and the Labour was lingring." There appears to be no allusion to the family forceps.

Thus Chapman could write of his own "knowledge and experience" of the forceps in 1733, and Giffard must evidently have used the forceps long before 1726, as he speaks of the use of "my *Extractor*" in a case that year, as a matter of course. The case came in his later experience shortly before his death and he had practised midwifery for years. In England, then, the forceps was a *secret de Polichinelle*. If Walker, the Chamberlen's relative, Drinkwater, Giffard and Chapman used it, surely others employed it. Yet Palfyn, after all, was the first man to make a forceps public, a queer very un-Chamberlen type of forceps it is true. At that very time

* I here take the opportunity of turning the reader's attention to Hody's "*Continuation of the* CLXXXVIth *Case, Page* 437, *by the Editor*" (p. 518). It was apparently an instance of deciduoma malignum following the discharge of a hydatidiform mole.

Dusée was probably using a forceps of his own, much more like the invention of the "Asclepiad family." It might have been inspired by some knowledge of the Chamberlens' instrument. This problem cannot be solved. It is certain, on the other hand, that Butter exhibited Dusée's forceps in 1733 and that he made observations on that occasion which together with the remarks of another writer in the summary appended to the *Medical Essays* led to the making known of the forceps to the profession in general. Hence Dusée occupies a prominent position in the history of the obstetric forceps. Let us now read what obstetrical authorities and teachers had to say about Dusée and his instrument.

Obstetrical Authorities on Palfyn and Dusée.

Petit.

Antoine Petit* makes no mention of Dusée in his once famous course of lectures on obstetrics. In 1770 he taught his pupils that, "There are three kinds of forceps, Palfyn's, Smellie's, and Levret's. The first was devised in London by Dr. Douglas,† about sixty-eight years ago. It was for a very long time unknown in France; it is only some thirty-six or forty years since Palfyn, surgeon at Ghent, brought it to Paris and passed himself off as the inventor. At the same time a certain Gilles Ledoux, surgeon at Ypres, invented something very similar and reported his pretended discovery to Palfyn, in consequence of which the invention of that instrument is much disputed. It bears different names; in France it is called *Palfyn's forceps*, in England *Douglas's forceps*, and in Flanders *Gilles Ledoux's forceps*." Then, ignoring Dusée, Petit turns to Smellie's and Levret's instruments. We will explain shortly how Mulder quoted from an earlier work of Petit's where a forceps much of the same type (*istius modi*) as Dusée's was described.

Mulder.

If we turn to Mulder of Leyden's *Historia Litteraria et Critica Forcipum et Vectium Obstetriciorum* (Leyden, 1794) we find mention of Palfyn and Dusée's forceps with interesting details. Palfyn, Ledoux and Heister's instruments are considered, and then Mulder speaks of *Nescio quis* who introduced a jointed forceps, French pattern

* *Traité des maladies des femmes enceintes, des femmes en couche, et des enfants nouveaux nés rédigé sur les leçons d'Antoine Petit et publié par* les Citoyens Baignères et Perral, Paris, An. vii (1798–9). "L'ouvrage que nous publions fut le sujet des leçons qu'Antoine Petit donna en 1777 à ses élèves" (Introduction).

† I have failed to find Petit's authority for this statement. The dates show that the Douglas mentioned could hardly have been John, surgeon to the Westminster Hospital.

which he figures (*op. cit.*, Pl. I, Fig. 7, *forceps incogniti**) adding (p. 17) that this remarkably modest gentleman (unique, I suspect) was approved of by Petit. Then (p. 18) follow the words, "Istiusmodi Forcipem, qualem ex PETITO descripsimus, in usum vocavit Expert. Obstetricator Parisiensis DUSE." Thus Petit described an instrument something like Dusée's, but not the same. Mulder adds that Dusée's was devised with blades constructed so as to avoid damage to the fœtal head high in the pelvis. Then he states that Dusée pointed out these advantages to Alexander Butter, an Edinburgh surgeon, who forthwith gave a description of the forceps with a drawing at a meeting in the year 1733. *Ipsum instrumentum cernere mihi non licuit,* Mulder informs us. He figures the forceps (*loc. cit.*, Pl. I, Fig. 8) a larger drawing than that accompanying Butter's communication but unshaded, being half the natural size of the instrument, and adds in a footnote that he had been obliged to rely on Butter for the account of the instrument which he had never seen. Butter, however, did not publish a drawing of the forceps as seen sideways. For its characters laterally Mulder had to consult a descripton given by Paulus de Wind "*Discipulus Dusei dignissimus,*" of whom we have already spoken. Mulder includes Dusée's and the unknown obstetrician's forceps in his very carefully prepared tables of measurement accompanying the plates. The Dusée forceps has very broad blades with exaggerated cephalic curves and the double lock arrangement is its most peculiar feature. The *forceps incogniti* has narrow blades, much less curved. In both instruments the blades are not fenestrated.

Thus Mulder confirms the generally accepted opinion that Dusée left the public demonstration of his forceps to a Scotch doctor. At any rate if he ever described his own invention the record of that description is apparently lost. I have failed to find the description of Dusée's forceps given by his pupil Paulus de Wind, but it must have been made public after Butter's report.

Before dismissing Mulder I will reproduce his observations on Palfyn and Dusée more fully than in the above paragraphs and in the original Latin.

MULDER ON PALFYN.

"JOHANNES PALFYN, Chirurgus et Anatomes Praelector Gandavensis in Operibus suis, quantum scio, descriptionem sui methodi, suorumve ad Caput incuneatum solvendum Instrumentorum, non reliquit sed constat aliunde (Levret, *footnote*) Virum Cl. cum 1720. Parisiis moraretur, ut Libri, quem de Anatome Corporis Humani conscripsit impressionis haberet curam, cum Academia regia scientarum Instrumentorum comunicavisse atque aliis dono dedisse, cujus ope Caput incuneatum solvi posset. Verum brevi

* Kilian, as will be shown, ascribes it to Palfyn.

tempore post GILLES LE DOUX, Chirurgus Yprensis, hoc Instrumentum, ut suum inventum sibi vindicavit; idem quoque fecerunt alii (M. SUE le jeune [in a work on obstetrics published in 1779 writes] *C'est* PALFYN *qui l' a fait connoitre en France; cependant son invention a été disputée par trois Chirurgiens*, quorum nomina non addidit. *Footnote*): quidquid fit, inventionis gloria licet dubia, certum tamen illum Instrumentum, cujuscunque demum Auctoris, nihilominus postea FORCIPIS PALFYNI nomen retinuisse." According to Charpentier, " dès 1713, Palfyn de Gand présentait à l'Académie de médicine de Paris une variété de forceps, qui se composait de deux branches, non croisées, non fenêtrées, et à courbure cephalique exagerée (*loc. cit.*, p. 677). I cannot discover on what authority Charpentier gives the date as 1713, seven years earlier than in Mulder's note. It may be a misprint, very probably Palfyn used his forceps long before 1720, but dates appended to reports of meetings of learned societies of the old French Academy are not likely to be inaccurate, and their archives are usually to be found handy for verification in medical and scientific libraries.

MULDER ON DUSÉE.

After dwelling on the difficulties in the introduction of the two blades when Palfyn's forceps (modified more than once) was employed, Mulder continues (p. 17): Tandem, nescio quis, utraque brachia jungebat per contabulationem, ita ut separatim introducta firmarentur, antequam Foetus educeretur, ope clavi cochlea instructi, quod quidem testatus est, atque adumbratione illustravit Exp. PETIT (Vid. Opus illius posthumum, quod sub titulo *Traité des maladies Chirurgicales et des operations, qui leur conviennent*, edidit M. LESNE, Paris, 1774) (Mulder reproduces Petit's drawing of the "forceps ignoti"), qui et ipse sua contulit ad emendandam Forcipem, ut suo loco videbimus infra. *Istius modi* Forcipem*, qualem ex PETITO descripsimus, in usum vocavit Expert. Obstetricator Parisiensis DUSÉ, sed experiebatur in eductione Capitis, altius in Pelvi haerentis, Juncturam saepe partibus Matris nocivam esse, atque Cochlearibus Arteriam Foetus temporalem non raro comprimi; hisce itaque vitiis mederi conatus est, emendationesque cum ALEXANDER BUTTER, Chirurgo Edenburgensi, communicavit, qui postea descriptionem delineationemque Forcipis DUSEI promulgavit anno 1733 (Reference to *Medical Essays and Observations*, copied out in full in the present communication). Ut pro re nata Juncturam a Pudendis removeret, alteram addidit magis ab extremo Cochlearium distantem, et ne temporalis Arteria comprimeretur,

* The italics are my own. Dusée's was a forceps "of the same kind" as that designed by the unknown obstetrician.

excavata fecit Cochlearium extrema; tandemque in genere longiorem adhucdum descriptis Forcipem, Manubriaque in uncos extrorsum flexus, terminata praetulit.

Mulder adds in a footnote: "Conf. nostra Tab. I, Fig. 8 and Tab. 1-ma dimensionum forcipum. Ipsum instrumentum cernere mihi non licuit, atque adeo dimensiones ex adumbratione, quam curavit Exp. BUTTER, designare coactus fui; verum cum lateralis delineatio non detur, in determinanda latitudine Cochlearium sequutus sum descriptionem, quam dedit Discipulus DUSEI dignissimus, Doctiss. PAULUS DE WIND." Lastly, Mulder concludes his observations on Dusée's forceps by quoting Butter's objections, given above.

KILIAN.

Kilian brought out two pictorial works on obstetrics, both very complete and elaborate. The first is his *Geburtshülflicher Atlas*, published at Düsseldorf in 1835. The second is his *Armamentarium Lucinae Novum*, issued in 1856 at Bonn. For some unexplained reason Kilian figures Dusée's forceps in his *Atlas* (Pl. XXXIV), but omits it in his *Armamentarium*; whilst, on the other hand, Chamberlen's instrument is not represented in the *Atlas*, yet five good drawings of it, showing its varieties, are included in the *Armamentarium* (Pl. XIII, Figs. 1 to 5).

Both Kilian's illustrated works are to be found in the Library of the Royal Society of Medicine. I have compared them and find the order of the series of obstetric forceps somewhat different, as follows:

ATLAS, 1 Albucasis, 2 Rueff, 3 Palfyn, 4 Palfyn-Heister, 5 Palfyn "*mit der Kreuzung.*" This is Mulder's *forceps ignoti, loc. cit.*, Pl. I, Fig. 7. 6 DUSÉE. The name is spelt correctly; most German and English works, British and American, spell it wrong. The drawing is poor as the lower screw holes are made too small as though the screw represented in the upper joint could not fit into them. 7 Giffard, 8 Chapman,* 9 Freke, 10 Mesnard, 11 Grégoire, 12 Rathlauw, 13 Bing, 14 Schlichtling, 15 Burton (the "Dr. Slop" of Sterne's *Tristram Shandy*), 16 De Wind, 17 Pugh, 18 Levret, 19 Smellie, 20 Johnson, and so on. Over 75 forceps, exclusive of cephalotribes, double crotchets, etc., are depicted.

ARMAMENTARIUM LUCINAE NOVUM. 1 Chamberlen, 2 Giffard, 3, 4, 5 Palfyn, with no distinctions such as are made in 3, 4, 5 in the *Atlas*; 5, as before, is Mulder's *forceps ignoti* with crossed blades (Dusée, omitted, should come next), 6 Chapman,† 7 Freke, 8 Mesnard, 9 Grégoire, 10 Rathlauw, 11 Bing,

* Three drawings, the third showing "the so-called English lock."

† One drawing only, the variety with the English lock is not represented.

12 Schlichtling, 13 Burton, 14 De Wind, 15 Pugh, 16 Levret, 17 Smellie, 18 Johnson (with the perineal curve), 19 Fried, 20 Leake, and so on, almost *ad infinitum* for the *Armamentarium* includes no less than 88 forceps, though published before the days of Simpson, Barnes, Graily Hewitt, before Aveling introduced his curved handles, and before Tarnier in 1870 added a contrivance which suited its well-known purpose and solved an important mechanical problem.

Unlike Mulder's work, neither the *Atlas* nor the *Armamentarium* give more than bare names. There is an "*Erklärung*" to the *Atlas*, but it is little more than a numerical list, and gives no information about Dusée beyond the name applied to the instrument.

In his *Atlas* (Pl. XV, Fig. 1) Kilian represents Bing's forceps which resembles Dusée's in that its blades are broad, strongly curved and not fenestrated. It has a complicated lock, and Mulder (*loc. cit.*, Pl. III, Figs. 1—5) figures Bing's instrument with a long description in Latin in the text (pp. 35–7); there is no double lock. This forceps was made public in 1750, long after Dusée's death.

Thureaud (Kilian's *Armamentarium*, Pl. XXXI, Figs. 1 and 2) appears to be the only other obstetrician who, like Dusée, designed a forceps with two hinges each to be used according to circumstances. In general appearance Thureaud's instrument is a very solid old-fashioned French forceps, after Levret. Rizzoli (*loc. cit.*, p. 457) includes Thureaud's forceps among those with reversible blades, which can be changed when in use, the lower taking the place of the upper and *vice versa*. Dusée's was not so constructed.

The broad, curved and non-fenestrated blades, so conspicuous in Dusée's forceps are also seen in forceps designed by Bing, Osiander, Weissbrod, Schöller, and possibly other obstetricians. Those here named are all figured in Kilian's *Armamentarium*. But the mechanism of these instruments is otherwise very varied. Assalini at one time used a non-fenestrated forceps (Kilian, *Armamentarium*, Pl. XXV, Fig. 7), but with the lock mechanism always associated with his name. A sample is on view in the Museum of University College Hospital.

Von Siebold.

Von Siebold,* like most other writers on the subject, couples the names "Dusée-Alexander Butter." He devotes a paragraph† to this forceps. It was, he says, an improvement on Palfyn's. The blades were made longer so that the lock lay further from the external parts. Dusé's (*sic*) forceps are crossed and the blades are

* *Versuch einer Geschichte der Geburtshülfe*, Berlin, 1839.

† Vol. II, "§ 110," p. 289. In his *Abbildungen aus dem Gesammtgebiete der theoretischprakitschen Geburtshülfe* (1836), mostly compiled from Maygrier, there is no mention of Dusée.

hollowed out at the end so as not to squeeze the head of the child. Von Siebold does not omit to state that the blades are drilled for the screw pivot at two places and that the handles are turned up at the end. He considers that this forceps, unlike Palfyn's, approached the English type, "and it is most remarkable that Dusé's (*sic*) instrument was also described and figured in England (*sic*), as Alexander Butter in Edinburgh published the first communication about it, in the city where he dwelt, in *Medical Essays*." Siebold conjectures that Butter in exhibiting the forceps "meant to stir up his countrymen, not wishing that they should keep their instruments secret. At any rate Chapman's public announcement of the English midwifery forceps followed soon after [Butter's exhibition of Dusée's forceps in Edinburgh]." Siebold adds references to Butter, Levret and Paul de Wind concerning Dusée's biography, and, in conclusion, shows that Dusée, about whose birth, parentage and education nothing has been recorded, must have been a recognized orthodox doctor as the Académie Royal des Sciènces accepted his memoir on the checking of uterine hæmorrhage by friction; besides he had at least one pupil, de Wind, who remembered his forceps and recorded the fact that his teacher died at the end of 1734. De Wind's works are hard to find, but it seems clear that he recorded nothing about Dusée's antecedents.

Charpentier.

Charpentier in his standard work *Traité Pratique des Accouchements* (1890), still a reliable work of reference, mentions this forceps (p. 678) as follows:—

"Forceps de Dusée En 1733, Dusée modifie le forceps de Palfyn, en faisant faire au corps de chaque branche à la racine de la courbure des cuillers, une entablure à mi-fer, pour joindre les deux pièces à volonté, au moyen d'une vis à large prise; en même temps il augmente encore la courbure des branches, et termine les branches par deux crochets tournés en dehors."

Thus a distinguished French obstetrician considers that Dusée deliberately designed his forceps as a modification of Palfyn's *mains de fer*. Von Siebold and others seem to have been of the same opinion.

Ingerslev.

One of the most exhaustive works on obstetric forceps is Ingerslev's *Die Geburtszange, eine Geburtshülfliche Studie*, published in 1891. The author lays great stress on the fact that Palfyn was the first to make public the midwifery forceps and explain its use, whilst, as Aveling had shown, the instrument in question had already been employed more or less secretly for nearly

a century. Dusée, Ingerslev points out, played a leading part in the history of obstetrical forceps, being the first man in Continental Europe to devise an instrument with crossed handles. Butter's observations are quoted, and Ingerslev adds that Dusée was ignored in his own country in his lifetime. At least Ingerslev has failed to find any mention of him in any French work prior to the date of Butter's demonstration.

Ingerslev illustrates his observations on the forceps with a drawing (*loc. cit.*, Fig. 16, p. 29), which is here reproduced (Fig. 5) as it is not the same instrument as the forceps in the College Museum (Figs. 1, 2). The latter, as has been pointed out, seems almost identical with that represented in the drawing from Butter's work (Fig. 3). Ingerslev represents a forceps undoubtedly Dusée's as the two locks and the non-fenestrated blades are shown, but the blades are made broader and the handles shorter than in the instruments represented in Figs. 1 and 2. Perhaps, however, the artist may have been at fault. If not, where is the forceps from which Ingerslev's drawing was taken?

OTHER AUTHORITIES.

Drawings of Dusée's forceps are also to be found in Busch's *Atlas* (Berlin, 1838), p. 308, and Churchill's *Operative Midwifery* (Dublin, 1849), Pl. IV, Fig. 7. The latter drawing is copied from Butter or Mulder. But Busch's, for a tracing of which I am indebted to Professor Bar and M. Collin, seems to have been taken from another sample of Dusée's forceps. The handles turn up at their ends *precisely* as in the College forceps (Figs. 1 and 2). The locks seem slightly different. But Busch's artist may have been more accurate than Butter's, for certainly Busch's drawing is the more finished of the two.

Sir A. R. Simpson.

Sir Alexander R. Simpson considers that whilst Butter, a Scotchman, was the first man to make public a forceps devised by a Frenchman, he was also the first man who ever spoke in public and wrote about the English forceps in Scotland. "Who first introduced forceps into Scotland? I ask it without being able to answer it. Very likely Hugh Chamberlen had a pair of forceps in his valise that time he came to Scotland to push his land bank scheme; but if he tried to make money of his secret here, as he did elsewhere, he found the Scots too canny to traffic with him."* Simpson then quotes Butter's report, published above in full. But in another

* *Address at the opening of the Forty-second Session of the Edinburgh Obstetrical Society. Edinburgh Med. Journ.*, January, 1883.

communication,* Sir A. R. Simpson reminds us that Smellie procured *a pair of the forceps described by Butter*, which he found unsatisfactory. Smellie set out to London and Paris in 1739.

Sir Alexander Simpson aptly defines Dusée's forceps: "It is clearly a French instrument, peculiar in that the blades are not fenestrated, and that there are two points at which the instrument could be locked, one close to the handles, the other far up the shanks towards the blades." As above explained, Sir A. Simpson gives a drawing of one of the forceps in Edinburgh.

In conclusion, I must express my thanks to Professor A. Keith, Conservator of the Museum of the Royal College of Surgeons, for directing that the photographs and copies of drawings of the forceps should be prepared, and to Sir A. R. Simpson, Sir Halliday Croom, Professor Paul Bar, Professor Calderini of Bologna, Professor Kouwer of Utrecht, Dr. Cordès of Geneva, Dr. Hellier, Dr. R. W. Johnstone and other authorities for valuable information about Dusée, his Forceps and his Contemporaries.

Illustrations.

Fig. 1. Dusée's forceps in the Museum of the Royal College of Surgeons of England. With the screw in the upper lock, as represented in all other drawings previously published.

Fig. 2. The same forceps. With the screw in the lower lock.

Fig. 3. Drawing of Dusée's forceps published with Butter's report in 1733. (For explanation see text.)

In Figs. 1, 2 and 3 the instrument is represented one-third of the natural size.

Fig. 4. Forceps invented and used by De Wind, Dusée's pupil. From Kilian's *Armamentarium Lucinae Novum* (1856), Pl. XV, Fig. 6. One-half the natural size.

Fig. 5. Dusée's forceps. From Ingerslev: *Die Geburtszange* (1891), Fig. 16, p. 29. Slightly different in pattern from Figs. 1–2 and Fig. 3.

* "The Invention and Evolution of the Midwifery Forceps." *Scottish Med. and Surg. Journ.*, December, 1900.

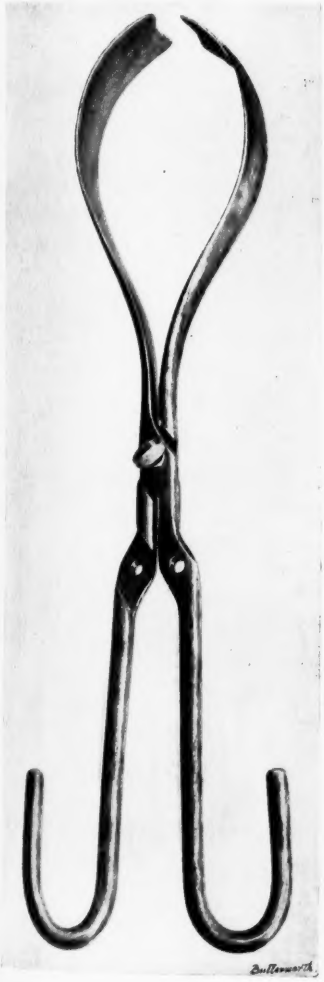

Fig. 1.

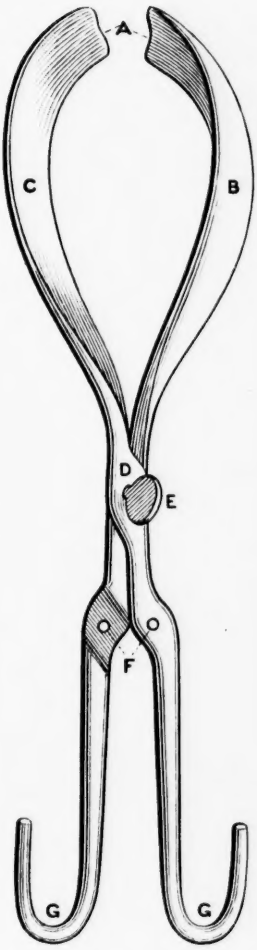

Fig. 3.

Fig. 2.

Fig. 4.

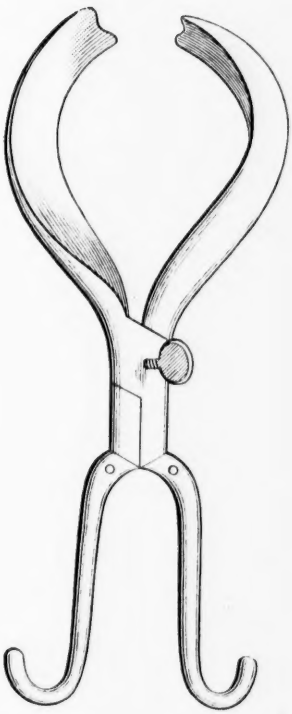

Fig. 5.

Ventrofixation: Its History, Technique, Uses, and Dangers, More Particularly as Regards Subsequent Pregnancies.*

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Suspension of the uterus, ventrofixation, hysterorrhaphy, and hysteropexy are all more or less synonymous terms applied to a number of similar abdominal operations, all of which are employed with a view of permanently overcoming retrodeviations of the uterus by the formation of an artificial ligament or ligaments holding the fundus in an anterior position.

In the words of one of the pioneers of this operation, viz., Kelly, "The term 'suspension of the uterus' is best restricted to that operation which attaches the uterus to the anterior abdominal wall by one or more delicate ligaments, the uterus itself being not directly attached to the abdominal wall."

"Ventrofixation" ought to be reserved for those methods which firmly fix the fundus to the anterior abdominal wall, but, unfortunately, operations, intended to be suspensory only, often result in more or less absolute fixation of the uterus with dangerous results. These operations have been performed since the early eighties, but there is, as yet, no general agreement as to the advantages and disadvantages of the operations and whether the former outweigh the latter or *vice versa*.

In 1904, Dr. F. W. Lynch published 21 cases where Cæsarean section had to be performed on account of dystocia due to previous laparotomies done for retroposition.[1]

In 1909, Dr. Murdoch Cameron mentioned, at the annual meeting of the Medical Association, two similar cases.[2]

At the same meeting Professor Jacob of Brussels denounced the operation as an unjustifiable operation, mentioning three fatal cases.

In August 1910 I had to perform Cæsarean section on a woman who had had ventrofixation done, and this case was reported in the *British Medical Journal* of December 1910.[3]

In a paper which he read at St. Petersburg in September 1910 Dr. Amand Routh of London gave an analysis of 1,282 Cæsarean sections done by obstetricians and gynæcologists resident in the United Kingdom, and, amongst those cases there were seven in which the cause of dystocia was a previous ventrofixation.[4]

* Thesis for degree of M.D., University of Aberdeen.

Having performed "intended suspensory" operations in several cases of retroposition and prolapses, and having had the case alluded to above, I have been led to make a study of the whole subject of ventrofixation with the object of coming to some definite conclusions on the numerous points connected with this operation, and the result of my work is embodied in the present thesis.

General Account of the Operations which have been Devised for the Permanent Cure of Retropositions and Prolapse of the Uterus.

The treatment of backward and downward displacements of the uterus by non-surgical measures has always been so unsuccessful from the point of view of a permanent cure that many operations have been devised to bring about the long-hoped-for perfect result.

These operations may be divided into two main classes—

1. Those in which the uterus was kept in position by the shortening of its own ligaments, *i.e.*, indirect or ligamentary fixations.

2. Those in which the uterus itself was attached to the surrounding tissues, *i.e.*, direct fixations or hysteropexies.

Operations included in Class 1:—

(*a*) Extra-peritoneal shortening of the round ligaments is an operation which was first performed by Alexander of Liverpool in December 1881,[6] and two months later by Adams, but was first suggested by Alquie of Montpellier in 1840.[7]

The typical Alexander-Adams operation is performed by finding the outer end of the round ligament at the external abdominal ring, drawing the ligament through the inguinal canal until sufficiently shortened and then fastening the end.

This operation has the great disadvantage that it is only applicable to women having normal uterine appendages and having a non-adherent uterus.

In addition to this the uterus is not kept in that position of anteflexion which is so necessary for a permanent cure. To obviate the former disadvantage, various intraperitoneal operations have been devised, *e.g.*—

(*b*) Wylie exposed the round ligaments about the middle of their course, drew them outwards, folded them on themselves, and sutured, so shortening them.[8]

(*c*) Dudley isolated the round ligaments at their attachment to the uterus and sutured them on to the anterior surface of the uterus.[9]

(*d*) Polk brings the round ligaments together at the base of the cervix and joins them together by sutures in that position.[10]

The general consensus of opinion is, that the operations (*b*), (*c*) (*d*) are failures, and that type of operation has been abandoned.

(*e*) Gilliam proposed to shorten the round ligaments by making an abdominal section, separating the fat from the aponeurosis of the external oblique, making an incision through the aponeurosis upon each side of the central incision, passing an artery forceps directly through the anterior abdominal wall, including the peritoneum, and then seizing the round ligament at a point about two inches distant from the horn of the uterus, and then drawing the round ligament through the anterior abdominal wall and suturing it to the aponeurosis of the external oblique.

Gilliam's operation has in its favour its simplicity and the fact that the best portion of the round ligament, namely, that next the uterus, is utilized in drawing and holding the uterus forward. Also, as the ligaments traverse the peritoneal cavity in a straight line from the horns of the uterus to the anterior abdominal wall, this fact gives the ligaments an additional mechanical advantage as a support over the anatomical course of the ligaments, which is that of a curved line.

The great objection to the operation is, that as each round ligament crosses the peritoneal cavity the anterior portion of the pelvis is divided into three segments, any one of which may act as a pocket in which a loop of bowel might get caught and strangulated.[11]

I have described Gilliam's operation at some length, as it forms the basis of several other operations which have been suggested as alternatives to the more commonly used operations of suspensio uteri of Kelly and ventrofixation. These operations, referred to, have been devised by Fergusson,[12] Simpson,[13] Noble,[14] and Mann,[15] and though differing in minor points are very similar. They consist in shortening the round ligaments so that the uterine half bears the weight of the uterus, and bringing them to the anterior abdominal wall underneath the peritoneum of the anterior surface of the broad ligament, suturing them there to the under surface of the aponeurosis of the external oblique.

Theoretically, these latter operations should not interfere with the normal course of pregnancy, because the round ligaments should develop during pregnancy as they have been observed to do after the Alexander-Adams operation, but sufficient time has not elapsed for final conclusions upon these points, based upon records of cases. These operations certainly obviate the danger of strangulation of bowel which is present in Gilliam's operation.

(*f*) Shortening of the utero-sacral ligaments, either alone or combined with some of the foregoing operations, has been

advocated by Bovee [16] and Stanmore Bishop [17] with the idea of more or less fixing the lower uterine segment to the tissue immediately in front of the sacrum.

This operation has been done through the vagina and also by the abdominal route, but most operators who have any experience of it have abandoned it as many post-operative complications, including even partial obstruction of the rectum, have been met with.

(*g*) Lawson Tait suggested a shortening of the broad ligaments by doubling them on themselves.[18]

(*a*) *Vaginal Fixation.*

(1) Of the cervix. This was performed by Amussat in 1830,[19] who was followed by Richelot in 1868 and later by Bossi, Byford, and Nicoletis. This form of operation was given up in favour of fixation of (2) the body of the uterus which was introduced by Rabinau in 1886, followed by Zwiefel and Schmidt, and advocated more recently by Dührrsen, Mackenrodt, Pryor, Le Dentu and Pichevin. The best known methods now are Müller's operation, done extra-peritoneally [20] and Martin's intra-peritoneal method.[21] Vaginal fixation of the uterus used to be said to be indicated specially when the retroposition was complicated by moderate prolapsus uteri and prolapsus of the anterior vaginal wall, and it is still said to be of value in fat subjects where Alexander-Adams operation and ventro-fixation are desirable.

A large number of cases have been reported which throw light on the after effects of vaginal fixation.

Dr. Van Velde reported a case where version was found impossible and Porro's operation performed with a fatal result; Strassman reported a similar case; Ruhl reported 10 cases of pregnancy following the operation, among which 7 had a normal labour and three required version,[22] and in two later cases, one child required perforation, and in the other case the forceps had to be applied through an incision in front of the os uteri.

Vineberg collected 58 cases of labour, including Ruhl's case, in 9 interference was necessary, viz., 1 Porro, 1 Cæsarean, 2 cervical uterine incisions and 5 versions.[23]

The general opinion held now is that vaginal fixation is not to be performed at all in women of child-bearing age.

Scott Carmichael, in a recent paper, holds that Martin's operation, properly performed, is the best treatment for prolapsus where there is much cystocele, but he never performs it on women of child-bearing age.[24] In the same paper, in reviewing the operative treatment of retropositions of the uterus, he chooses Gilliam's operation as founded on the best scientific anatomical basis.

(*b*) *Ventrofixation.*

Compared to the previous operations, fixation of the uterus to the anterior abdominal wall is a comparatively simple procedure, and was first performed by Lawson Tait in 1880. It is, however, to Olshausen that we are indebted for the first description of the operation which he communicated to the Berlin Medical Congress in 1886.[25] In the same year, Kelly read a paper to the Philadelphian Obstetrical Society, entitled "Hysterorraphy," describing a case operated upon the previous year; this paper was published in January 1887.[26]

Along with the account of his own case, Kelly published notes of cases treated in a similar manner by Bennecke, Werth and Sänger.[27]

Since then, Czerny, Leopold,[28] Schauta and many others have contributed to the literature on the subject, with the result that the operation, as originally described, has undergone many modifications which have proved more or less useful.

Two of the methods which have been tried and found wanting are:—

(1) Indirect ventrofixation, which was introduced and practised by Koeberle and Klotz and consisted in unilateral amputation of the appendages with fixation of the stump to the abdominal wall. This method naturally produced a very marked torsion of the uterus and has been practically abandoned,[29] and

(2) Direct lateral fixation, in which the uterus was fixed to the abdominal wall by three sutures passing through the peritoneal covering of the uterus at both cornua; this, of course, meant that there was a pouch formed, just as in the original Gilliam operation, into which a loop of bowel might pass and be strangulated. (Olshausen-Sänger.)

The Technique Adopted at the Present Day.

Suspensio uteri, or the Kelly operation, is the name given to the technique advised and performed upon women during the child-bearing period.

The patient is prepared in the usual way for abdominal section, her bladder is emptied by means of a catheter, and she is placed in the Trendelenburg position. An incision is made through the abdominal wall in the middle line about $2\frac{1}{2}$ inches long and terminating about $\frac{3}{4}$ inch above the pubes. The incision is continued through the peritoneum for the whole length, and the peritoneum caught in forceps so that sufficient will be present at the end of the operation to allow of the separate closure of the peritoneal wound.

Two fingers are now introduced into the abdomen and the uterus

and its appendages examined with a view to finding out whether there are any adhesions present, which would now be broken down if slight or severed between forceps by means of a scissors if severe or dense.

The uterus is then elevated into the wound and a large abdominal swab inserted behind it to keep the intestines out of the way. Unless the patient is very fat and it is difficult to hold the uterus up into the wound, it is advisable not to grasp the fundus of the uterus with a volsellum, as that increases the risk of dense adhesions forming, instead of the delicate ones which this operation aims at producing.

The next step is the attachment of the uterus to the abdominal wall; this is done by raising one side of the lower angle of the incision with two fingers, in order to expose the inner surface; the peritoneum and sub-peritoneal tissues are now transfixed at a point 1 to 1½ cm. away, including an area 8 to 10 mm. broad; the fundus uteri is next transfixed by the same needle carried transversely through a part of the posterior surface of the uterus a few mms. below a line connecting the Fallopian tubes; the suture takes in an area of uterine tissue about 3 to 4 mm. deep and 1 cm. broad; the needle is next carried through the same tissues of the abdominal wall as before on the opposite side of the incision, at a point corresponding to the first side.

This suture is now drawn taut, but it is not tied until one has satisfied oneself that there is nothing caught in the loop of suture. When this suture has been tied a second suture is passed about 1 cm. above the previous one. The first suture keeps the uterus in a position of slight anteflexion, while the second increases this anteflexion by bringing more of the posterior wall of the uterus into contact with the anterior abdominal wall. There is no need for more than these two sutures unless there is considerable descensus accompanying the retroposition with therefore a good deal of dragging.

Before closing the abdomen, the omentum is drawn down, and the neighbourhood of the uterus carefully examined in case any loop of bowel may have been caught.

The peritoneum is now carefully sutured with a continuous catgut suture, great care being taken that the abdominal cavity is thoroughly well closed off. The recti and their sheaths are sutured with one continuous catgut suture and the skin incision closed either by clips or silkworm gut sutures.

After-treatment. The bladder is emptied by catheter every three or four hours for the first four days, and then six hourly for the next week or ten days. The bowels should be opened 48 hours after operation. Absolute rest in bed for three weeks after operation is essential, but the patient may be turned round on her side for sleep after the first few days.

It should always be borne in mind that the following conditions

may arise during the operation and during convalescence which may lead to absolute fixation :—

(1) Suspension of a fundus which is bleeding, caused either by grasping it with a volsellum or by broken-down adhesions.

(2) Deep infection of the abdominal wound.

(3) Suspension of a pregnant uterus—owing to the rapid growth of the uterus under such conditions, fixation is very apt to occur.

(4) Non-absorbable sutures may often be the sole cause of fixation owing to the irritation set up by their presence. Kelly himself recommends silk and condemns silkworm gut. Personally I have iodized catgut sufficiently strong for suspension purposes, and never use anything else.

Kelly, in comparing his technique with that followed by other surgeons, condemns the practice of including a bit of the rectus muscle or fascia in the suspension sutures, on the grounds that it is likely to bring about a certain amount of fixation.[30]

Herman, on the other hand, advises that the uterus be sutured to the bared edge of the rectus muscle, for the following reason, " to obviate the risk of obstruction of bowels by bands passing from the uterus to the abdominal wall." He says : " We know that adhesions of peritoneum to peritoneum are often absorbed and that they stretch. If, therefore, in ventral fixation the peritoneal surface of the uterus is stitched to the peritoneum of the abdominal wall, it is not surprising that the adhesions should stretch and possibly in time be absorbed. If the adhesions should elongate into a band, then there will be danger of obstruction some day arising. But when peritoneum is stitched to muscle, as in colotomy, the adhesion neither stretches nor is absorbed.

I think, therefore, that in performing ventral fixation the parietal peritoneum should be separated from the muscle and the uterus stitched to muscle."

This is Herman's technique of the operation which he advises and performs upon women during the child-bearing period, and is not an example of the type of operation known as "deliberate-fixation." But Herman's site of suture on the abdominal wall is " about half-way between the symphysis pubis and the umbilicus," and the part of the uterus that is brought into apposition with the abdominal wall is " the anterior half of the fundus uteri." He sees no advantage in trying to pull the uterus up to the umbilicus, or tying it down immediately above the pubes, or sewing its whole anterior surface to the abdominal wall, these all being methods advised by some surgeons.[31]

Penrose also advises inclusion of a few fibres of the rectus, but makes the proviso that the fascia of the rectus should not be included in the suture. He advises that the amount of uterine tissue included

in the suture should not be more than about $\frac{1}{4}$ in. broad and $\frac{1}{8}$ to $\frac{1}{4}$ in. deep. A note of his results as regards subsequent pregnancies will be found in the following section.[32]

Deliberate fixation of the uterus is often practised upon cases where there is a large organ with considerable descensus and dragging.

This operation differs from the suspensory type of operation inasmuch that the uterus is sutured to the bared edge of the recti muscles and that its surface is deliberately scarified so that dense adhesions may result which will be better able to cope with the weight of the enlarged organ than the slim suspensory ligament produced by the Kelly operation. There is now no doubt that this operation should never be performed in women of a child-bearing age unless sterilization be carried out at the same time.

The Difficulties which may Arise During Pregnancy and Labour after the Operations of Ventrofixation and Suspensio Uteri.

It is a generally accepted fact that grave difficulties may arise during pregnancy and labour when the uterus has been fixed to the anterior abdominal wall by means of dense adhesions such as are produced by the operation of ventrofixation. The advocates of suspensio uteri, on the other hand, however, hold that the proper performance of their operation should not be followed by any serious difficulties; before discussing this idea it would be as well to enumerate the various difficulties which are met with:—

(1) *During Pregnancy*—

(*a*) Excessive pain during the second half of pregnancy owing to the growing uterus tugging at its moorings.

(*b*) Hyperemesis gravidarum—seems to be met with fairly often and is probably caused by the traction on the dense adhesions setting up a reflex emesis as in a case recorded by Dr. Cameron of Montreal.[33]

(*c*) Tendency to premature labour.

(*d*) Placenta prævia—or at least a very low attachment of the placenta predisposing to hæmorrhages in the later months; in my own case there was a big hæmorrhage at the eighth month, and at the subsequent Cæsarean section the placenta was found with a very low attachment.

(2) *During Labour*—

(*a*) Tedious labour—the posterior wall gets so much thinned out that it is unable to contract properly.

(*b*) The anterior wall takes no part in the growth of the uterus and may interfere with labour in two ways, viz. :—

1. It has been observed to act like a tumour obstructing labour.[34]
2. More commonly, the fœtus lies on this thickened wall as if on a shelf and so fails to enter the lower segment.[35]

(*c*) Delay may also arise in the proper opening of the cervix—the probable reason of this is, that the natural axis of the uterus is altered, the fundus being attached just above the pubes and the cervix lying in apposition to the sacrum, so that practically the whole of the uterine cavity lies above the axis proper.

(*d*) Abnormal positions of the fœtus owing to the peculiar shape of the uterus necessitating adaptation to that shape—transverse positions and breech presentations being met with more frequently than is usually the case. In my own case the presentation was a transverse one, but it is an interesting fact that in the previous labour after ventrosuspension the presentation was a breech, this being due in all probability to the fact that the child was a very small one and was slightly premature.

(*e*) Extreme difficulty in version of the transverse presentation cases—this is due, no doubt, to the uterus being so immobile.

(*f*) The risk of rupture of the uterus during manipulative procedure is greatly increased owing to the thinness of the posterior wall.

MacMonagle,[36] in an article on suspensio uteri, asserts that nearly all, if not all, of the recorded cases of difficulties following this class of operation, followed ventral fixation and not ventral suspension.

Noble [37] has collected cases from American and German sources, and has made a careful study of this subject, but because of the interchangeable use of the names fixation and suspension of the uterus by all operators, he was unable to distinguish between the cases operated upon by ventral suspension, ventral fixation or any one of their modifications. In the two cases presenting difficulties during labour in his own practice the operation had been in each case ventral fixation. In this communication there were records of 808 cases, and of these about one-quarter of them were cases operated upon by Kelly, who does only the suspensory operation and amongst his cases there was only one presenting difficulties of a serious nature during labour. Noble therefore concludes that practically all the cases in which difficulties were met with must have followed fixations.

This conclusion seems to be rather a rash one, as Kelly has had more experience and a better technique than perhaps any other operator in the performance of the rather delicate operation of ventrosuspension—it would, therefore, have been wiser to have said that the cases reported showing difficulties followed either fixations or opera-

tions intended to be suspensory, but which had resolved themselves into fixations owing, possibly, to faulty technique.

Dickinson [38] reported a case of Cæsarean section on a patient on whom Kelly had done myomectomy and suspension—this was a case of twin pregnancy, and the obstruction to labour was the thick anterior uterine wall.

MacMonagle has done 250 ventral suspensions and he has never heard of "any serious inconvenience during either pregnancy or labour" in the cases he has operated upon; one of his cases was delivered of triplets by a midwife![39]

Lapthorn Smith [40] collected 2,500 cases of "ventrosuspension" done by 41 different operators, including 111 of his own. Pregnancy followed in 148 cases, and of these there were 36 (30 per cent.) who had "either severe pain, miscarriages or labours requiring obstetric operations."

Dunning,[41] in a record of 165 cases, stated that 8 had become pregnant and had gone through labour without complications.

Fry,[42] in a record of 150 cases, stated that 15 had become pregnant and had gone through labour without complications.

Applegate,[43] in considering the subject of ventrosuspension in the light of the results of Dunning and Fry, considered, that in view of subsequent pregnancies, it was safer to pass the suspensory sutures through the anterior uterine wall than through the fundus or posterior wall.

Penrose,[44] whose method of operating has already been referred to, operated on 310 women in the period 1893—1901, and of these 28 became pregnant. Of these 28, 20 went to full term and 18 of these had normal labour; 1 had a prolonged labour without forceps, and 1 required forceps. The remaining 8 miscarried at various times during gestation.

Penrose, in reviewing his results, takes the latter lightly, and says they are very few for the number of women—211—who reported themselves. Surely the proper way to look at it is, that out of 28 women who became pregnant 8 miscarried, *i.e.*, 28 per cent., rather a high percentage!

Martin [45] reported 425 cases following suspensory operations done by various operators in Germany; 329 showed no departure from normal during pregnancy; 309 were normal during labour.

There were many difficulties encountered during both gestation and labour.

The abnormal labours included—

9 Versions.
13 Forceps.
8 Cæsarean sections.
1 Ruptured Uterus.

Maternal mortality was 6.

Milander [46] collected 74 cases, of which 63 had been confined—54 went to full time, 6 aborted, 3 had premature labour. Eleven of the labours required assistance, 2 being delivered by Cæsarean section. We see then that 32 per cent. had abnormal labour.

Küstner [47] collected 122 cases of pregnancy following ventral fixation operations—74 went to full time and operative interference was called for in many cases.

This seems to be a convenient point to draw attention to the apparent superiority of the American operations over the German methods, as shown by a comparison of the above records. The best paper published in this country giving an analysis of cases is that of Russell Andrews.[48] It consists of a record of 395 cases of pregnancy following laparotomies done for uterine displacements and includes the 206 cases reported by Noble in which the actual termination of the pregnancy was known. These cases were taken from all available sources and include practically all the different methods of operative treatment of backward displacement of the uterus in use prior to the date of the paper, namely, 1905 :—

Normal labour accounted for			259	cases
Abortions	„	„	36	„
Premature labour	„	„	9	„
Forceps delivery	„	„	21	„
Version	„	„	19	„
Cæsarean section	„	„	20	„

Perforation had to be done in 3 cases.
Rupture of the uterus occurred in 3 cases.
Transverse position of the child was noted in 10 cases.
High position of the cervix was noted in 22 cases.

The following points are interesting and worthy of notice :—

(*a*) None of the Cæsarean sections were performed in this country; 6 were American cases and the rest on the Continent.

(*b*) Only two Cæsarean sections followed pure suspensions and even they were doubtful.

Fixation of the stump of appendages, 3 cases.
Fixation of posterior wall, 2 cases.
Olshausen's method, 1 case.
Intra-abdominal shortening of round ligaments, 1 case.
Suspension of pregnant uterus, 1 case.
Pure extensive fixation, 2 cases.
Fixation with infection of abdominal wound, 1 case.

Andrews draws the following conclusions :—

(1) That there is no special liability to abortion.
(2) That there is no great tendency to premature labour.

(3) That pain occurs in a considerable proportion of cases.

(4) That high position of the cervix is the most common difficulty met with after ventral fixation.

(5) That there can be no doubt that ventral fixation predisposes to malpresentations, particularly transverse positions.

(6) That the method of performing ventral fixation which causes least difficulty in labour is that in which the uterus is fixed to the peritoneum alone, or to the peritoneum and sub-peritoneal tissue only.

In August 1910 I had to perform Cæsarean section upon a woman who had had the operation of ventrosuspension done; between the suspension and the pregnancy that resulted in Cæsarean section she had given birth, unaided, to an eighth month child. The high position of the cervix was a notable feature of this case, and I was not looking for such a condition as my attention had never been drawn to this complication following suspensory operations.

Up to that time I had never heard of cases showing such extreme dystocia after ventrosuspension and had myself done several pure suspensory operations, none of which, however, had been followed by pregnancy.

In reporting the case, I mentioned, in concluding, that I had never heard of such extreme difficulty, and the result of my statement was, that Dr. Amand Routh of London kindly wrote me, informing me, that amongst 1,282 cases of Cæsarean section which he had collected, seven had ventrofixation as the cause of the dystocia. These seven cases were subsequently published in the *British Medical Journal* of January 28 1911 along with another case which Dr. Routh had met with since compiling his series of cases. I propose dealing with these cases later on.

In a case published by Dr. Harman Brown, where he had to do Cæsarean section, again the most interesting feature was the high position of the cervix, which was quite out of reach. In March 1911 Dr. Blackmore of Hereford published a case of "multiple pregnancy with convulsions during labour."[49] It was a case of triplets in a multipara. After the first child was born the patient had an epileptiform convulsion. The third child presented by the breech and was easily delivered and then another convulsion came on.

Dr. Blackmore remarks: "The occurrence of convulsions is interesting, and, as they can hardly have been eclamptic in nature, were possibly due to the fixed position of the uterus. The patient's previous confinements were quite normal, and she had never suffered from fits of any description before this. This patient had undergone 'ventral fixation' five years previously."

I can hardly agree with the statement that the convulsions were possibly due to the fixed position of the uterus. If it had been a single pregnancy in a multipara one might have had some cause to

attribute the convulsions to the fixation. But when one has one of the well-recognized predisposing factors to epileptiform attacks present, viz., multiple pregnancy, it is rather difficult to follow the reasoning which would lead me to such a conclusion. Accordingly, I have not added epileptiform attacks to the already fairly extensive list of difficulties which may be met with in pregnancy and labour following ventral fixation operations.

The Treatment of the Difficulties which may Arise During Pregnancy and Labour after Ventral Fixation.

(*a*) *During pregnancy.* The only recorded treatment of difficulties during pregnancy is that of Montgomery,[50] who on several occasions has opened the abdomen and cut the adhesions so that the uterus might be set free and allowed to develop properly. Short of this operative interference, excessive pain and vomiting must be treated on ordinary medical lines.

(*b*) *During labour.* Noble[51] has suggested anticipating difficulties and advises that a woman who has had ventrofixation or suspension performed upon her should be examined periodically. He says: "If the cervix is drawn up or if a tumourous mass be felt through the anterior abdominal wall, labour should be induced four weeks before term." This is quite a good suggestion, as far as private patients are concerned, but I am afraid it would not work very well among the poorer hospital class of patients. By making this suggestion Noble rather discounts the views expressed by him and already noted, viz., that all cases of difficulty during labour are found when the uterus has been fixated and not suspended.

This suggested line of treatment places "dystocia due to ventral fixation" alongside the treatment of contracted pelvis cases, as the only treatment, more than the minor obstetrical operations, for the former condition recorded is Cæsarean section. It will, therefore, be largely a matter of personal opinion and choice whether one should follow out Noble's plan, or be prepared to perform Cæsarean section, should labour prove too difficult for less radical measures; personally I am rather in favour of the latter alternative. Prior to the publication of my case there had been seven Cæsarean sections done in this country for dystocia due to ventral fixation, two of which had been recorded. Since then there have been other two cases recorded, so that there are now ten cases which have been done in this country, and I now propose to analyze those cases as far as the information in each case makes it possible for me to do so.

Case 1. January 13 1903, Dr. Herbert Spencer.

Ventrofixation resulted from myomectomy, the pedicle being treated as extra-peritoneal stump. Cæsarean section performed

before the onset of labour. Patient recovered, child died from hæmorrhage due to slipping of loose ligature on the cord. Patient not sterilized.

Case 2. February 4 1907, Dr. Targett.

Ventrofixation in 1902 for retroversion and prolapsus uteri with extreme distorsion of uterus. Patient not in labour when admitted, but fourteen days over full term. At the Cæsarean section the fundus was found firmly adherent to the abdominal scar. Child was lying in an enormous distension of posterior wall of the uterus. Mother and child survived. Patient was not sterilized.

Case 3. October 6 1908, Dr. Jardine.

Ventrofixation after last pregnancy. Cæsarean section during labour, with threatened rupture of uterus. Fundus found densely adherent above the symphysis. Mother and child recovered. Mother was sterilized.

Case 4. December 7 1908, Dr. Murdoch Cameron.

Ventrofixation after fourth confinement. Admitted in labour. Membranes ruptured. Cervix very high up. Tonic contraction of the uterus. Transverse presentation. Mother and child survived. Mother was sterilized.

Case 5. November 5 1909, Dr. Murdoch Cameron.

Three previous children delivered by craniotomy. Cervix could be reached only by passing the whole hand into the vagina. Mother and child survived. Mother was sterilized.

Case 6. March 20 1910, Dr. Munro Kerr.

Operation stated to be ventrofixation. Operated on during labour. Mother and child survived. Mother sterilized.

Case 7. May 21 1910, Dr. Rankin Lyle.

Ventrosuspension eleven years previously. Chronic intestinal obstruction for twelve months prior to Cæsarean section.

Obstetric history. Twelve previous pregnancies, as follows: 7 abortions before ventrosuspension; 8th and 10th normal deliveries; 9th and 11th instruments and puerperal fever; 12th instruments. In labour but membranes intact; hand had to be introduced into vagina to reach cervix. Uterus much anteverted, and at the Cæsarean section was found to be densely adherent, and the cervix was found to be four inches above the sacral prominence. Hydramnios present. Uterus freed and adhesions ligatured off. Abdomen re-opened on 6th day after operation for intestinal obstruction but mother died next day. Child also died—hydrocephalus.

Case 8. November 25 1910, Dr. Amand Routh.

Ventrofixation was performed in 1900, and for 3½ years a sinus remained open in the abdominal scar. Prior to ventrofixation still-born child in 1898 and a living one in 1899. Since ventrofixation three dead children; in each case there was great difficulty in delivering the child by forceps, the uterus being firmly adherent to the abdominal wall and at a high level. The cervix could be reached only by inserting the whole hand into the vagina.

In this case, as a living child was desired, Cæsarean section was performed at the 39th week. Labour, though not waited for, had evidently commenced. There were extensive adhesions for about three inches above the pubes, so the uterus was incised at a higher level than usual, and the adhesions were not interfered with. Mother not sterilized and mother and child both survived.

The reports of the above eight cases, detailed above, are taken from Dr. Routh's paper. My case occurred previously to Case 8, and the following is a condensed account of the memorandum published:—

Case 9. August 17 1910, Dr. Manson Fergusson.

Obstetrical history. Three pregnancies terminating normally in rapid succession, then an abortion at the third month.

Ventrosuspension in August 1908, for which she was three weeks in hospital. Delivered herself of a very small premature child, presenting by the breech in May 1909 with no doctor present.

Then the pregnancy which resulted in the Cæsarean section, during which "she did not feel at all like she had done in previous pregnancies," and in the 8th month of which she had a sudden hæmorrhage while lying in bed and which stopped without any treatment beyond rest in bed for four days; after that she did light housework till she fell into labour on August 16 at 11 a.m. Her medical attendant did not see her till about 10 p.m., and then the os was very far up and dilated sufficiently to admit the tips of two fingers, membranes intact and a transverse presentation. He tried to deliver by version but failed. I went out to his assistance between 2 and 3 a.m., and we both attempted to deliver by version but failed. She was now very weak, pulse being 130, and we drove her into hospital, 2½ miles away, in an ordinary cab, as her house was merely a farm labourer's cottage.

On arrival in hospital her pulse was 140, and temperature 100°F. A rectal saline with brandy, a hypodermic of strychnine $^1/_{30}$ and digitalin $^1/_{100}$ were administered and Cæsarean section was commenced about 7 a.m., *i.e.*, about 20 hours after the onset of labour. Chloroform was administered, and on opening the abdomen the uterus was found fixed to the anterior abdominal wall by a strong fibrous band not more than 1 inch in length, about ¼ inch thick and 1 inch broad,

about 1½ to 2 inches above the pubes. The uterine wall above the adhesion was very much thinned out and followed every contour of the fœtus, but below it was very much thicker. Considerable hæmorrhage followed the opening of the uterus, but it was soon controlled, after removal of the fœtus and placenta, by means of very hot saline solution. The child appeared to be quite full time and weighed fully 8 lbs., but unfortunately could not be revived. The uterus was freed and left, but the patient was sterilized. Four doses of aseptic ergot were given at intervals of four hours intramuscularly, rectal salines with brandy were given frequently, and ¼ gr. morphia hypodermically effectually stopped the rather severe chloroform sickness which was present.

Her recovery showed no difference from an ordinary puerperium as the temperature fell to below normal in eight hours after the operation, the pulse-rate steadily diminished, involution followed a normal course and the lochia remained absolutely pure. I have seen the patient on several occasions since her operation and she is in perfect health and there is no weakness of the abdominal scar.

Case 10. January 20 1910, Dr. Harman Brown.

Patient, æt. 32, 3-para; ventrofixation performed 16 months previously; 24 hours in labour; cervix dragged up quite out of reach; uterine wall very thin. Removed to hospital and operated upon at once. Fundus was found firmly adherent to the scar in anterior abdominal wall. Mother sterilized by ligaturing the tubes in two places.

Dr. Harman Brown informs me that the ventrofixation was performed by Mr. Christopher Martin of Birmingham, and that the method followed was "through and through sutures of silkworm gut, *i.e.*, skin, recti and peritoneum, two or three of them going into the anterior uterine wall, then scarifying the uterine peritoneum between the stitches. Recti sutured with continuous catgut. Silkworm gut sutures removed on the 10th day."

Dr. Harman Brown concludes his communication to me by mentioning that he has frequently done the same operation as this, but always endeavours to get permission to ligature the tubes.

Conclusions.

Firstly, as regards the treatment of difficult labour following ventral fixation of the uterus.

I think that a consideration of these cases will lead one to the obvious conclusion that living children can be delivered by Cæsarean section with small risk to the mother when ventral fixation causes dystocia.

The only case in which the mother lost her life (Case 7) death was

really due to a complication present before operation. Three of the children died, but they would have died in any case except possibly in my own case, where earlier operation might have resulted in a living child.

Dr. Routh, in concluding his article in the *British Medical Journal*, says: "Dr. Fergusson's case shows us that Cæsarean section may be safely done after other attempts at delivery have failed, provided that, as in his case, antiseptic precautions had been carefully adopted."

I have not found any text-book of obstetrics in which there is laid down any special treatment for this form of dystocia. It is a generally accepted fact that if Cæsarean section has to be performed the sooner it is done after labour has commenced the better for the sake of both the mother and the child. The question comes to be: "Under what circumstances should we advise Cæsarean section in cases where there is a history of ventrofixation having been performed?"

I think that the following circumstances would be sufficient ground to warrant us advising Cæsarean section:—

(1) When there is a history of severe dystocia in one or more labours following ventrofixation and more particularly when the result of the labour has resulted in a dead child or great exhaustion and tardy recovery of the mother. These cases should be advised to come into hospital, or nursing home as the case may be, a week or two before the date of expected labour, so that precautions and preparations might be taken to ensure as little risk as possible. Personally, I think that this is a better plan than Noble's suggested line of treatment of inducing premature labour, especially when a thoroughly healthy child is so preferable.

(2) When we meet with a case only after labour has commenced and in which the cervix is so far up that vaginal manipulations are rendered exceedingly difficult and are likely to prove abortive in such cases, the less one attempts in the way of version the better, because the wall of the uterus is so thinned out that rupture is extremely likely to occur.

I am quite sure that this is a better plan than having resort to embryotomy, for I question very much if one would be able to deliver by that method when the cervix is so far out of reach. I know that it would have been an operation fraught with great danger to the mother in my own case, and in it the cervix was evidently not so far away as in some of the other recorded cases.

Secondly, we must look at the records of cases of pregnancy following ventrofixation and try to come to some conclusions as regards the proper treatment to adopt for those displacements for which ventrofixation and similar operations have been devised. In comparing the ten cases of Cæsarean section done in this country it

will be seen that only in two instances had the uterus been suspended (Cases 7 and 9).

Case 2 had very firm adhesions, and had been done for prolapse as well as for retroversion, a fact which always leads one to suspect that dense adhesions had been intended, as an ordinary suspension will not cure a prolapse.

Cases 3, 4, 5 and 6 had all been fixations (stated by recorders of respective cases).

Case 8 was a case where the dense adhesions had been caused by infection of the abdominal wound.

Case 10, from the description sent me by Dr. Brown, was without doubt a deliberate fixation.

Case 7 was a suspension, but there had been four labours since the operation with puerperal fever on two occasions, all of which circumstances would tend to produce dense adhesions.

Case 9 was my own case and a suspension, but it was done for prolapse, and as far as I am aware the method adopted was to include the rectal fascia in the suspensory suture. I am also inclined to think that the fact of her having had a labour between the date of the operation and the date of her last pregnancy would tend to make the adhesions firmer.

From these cases, therefore, we have no proof that suspension of the uterus by Kelly's method will give, in a subsequent labour, any serious dystocia, but at the same time we can readily realize that troublesome dystocia will very readily be present in cases where actual fixation has been done or where certain complications have arisen after the proper performance of a suspension of the uterus to the peritoneum of the anterior abdominal wall. Amongst the Cæsarean sections recorded by Andrews, already referred to, only two had been suspended, and even these were rather doubtful.

Fritsch's method, which was responsible for three cases, consists in passing six catgut sutures through the fundus of the uterus, parietal peritoneum, and posterior fascia of the rectus, but not through the rectus itself; this method means that there must be a considerable amount of irritation set up by the large amount of buried suture material and consequently denser adhesions; in addition, the sutures, being carried through the fascia of the rectus, cannot possibly close off the peritoneum so well as is done by Kelly's method.

Fritsch's method is the nearest approach to a simple median fixation among these cases, and apart from the interesting cases recorded of suspension of a pregnant uterus and of intra-abdominal shortening of the round ligaments, the other cases owed their trouble to methods which are now given up entirely when women of child-bearing age are operated upon for retroversion or prolapse.

Amongst Andrew's cases of pregnancy and labour there were 34

whose uteri had been sutured to peritoneum and sub-peritoneal tissues only. Of these 29 had no pain during pregnancy; 4 had pain during pregnancy; 1 aborted; 1 premature labour at 7th month; 1 forceps case; all the other labours being normal with the exception of two cases of retained placenta which one could hardly say were due to the ventrosuspension. If we compare the direct fixation cases among Andrew's cases, we find that (1) when the posterior wall of the uterus has been the part sutured to the abdominal wall, as it was in two instances, there was one Cæsarean section and one normal labour; (2) when the fundus was fixed (47 cases) there were 5 Cæsarean sections, 1 perforation of the aftercoming head, 1 difficult version and 2 forceps, 33 normal labours, 3 abortions and 2 premature labours; (3) when the anterior wall of the uterus was fixed (14 cases) there were 6 versions and 1 forceps, but no Cæsarean sections; there were 3 abortions.

Except in America there seems to be a fairly general opinion that Kelly's suspension operation does not afford a permanent cure of the retroversion, and accordingly most operators who still do median hysteropexies take in more of the tissues of the abdominal wall than there is any necessity for, if the operation is being done for a pure retroversion or retroflexion.

Kelly has had occasion to open the abdomen in 17 cases where successful suspensory operations had been performed at periods varying from 10 months to $3\frac{1}{2}$ years. In each case the uterus was found lying in easy anteflexion with its posterior surface attached to the anterior abdominal wall by a dense smooth fibrous band which averaged 3 to 5 cm. in length, and varied from a few mm. to $1\frac{1}{2}$ cm. in width, and there was no tension on these bands. We have seen that there are practically no cases on record where trouble has followed Kelly's technique, so one must admit that the operation is effective and simple to perform and at least less dangerous in its after effects than the methods where the rectal fascia or the rectus muscle itself are included in the suspensory sutures.

It is my own opinion that the operation of hysteropexy is used very often in this country when its use is not absolutely necessary. For instance, it is used as a curative measure for prolapse, when pessaries fail, instead of increasing and strengthening the tissues constituting the natural diaphragm of the pelvic outlet. A great deal can be done by the proper repair of the perinæum and the levator ani muscles combined with removal of any redundancy of the vaginal mucous membrane and amputation of a long cervix should such a condition be present.

Herman goes as far as to say that even deliberate fixation alone almost always fails to cure a real prolapse.[52]

Sellheim, in common with the majority of German surgeons, has practically abandoned median hysteropexies, both suspensions and

fixations, in favour of extensive plastic operations upon the perinæum and vagina for both retro-displacements and prolapse.[53]

I am of opinion, however, that there is a goodly number of cases where no amount of perineal and vaginal repair will cure the prolapse and where an additional operation, preferably a deliberate fixation, is necessary. I think I may safely say that suspension should never be used as a cure for prolapse and that a fixation should not be resorted to till other means have proved useless, and when fixation is decided upon during the child-bearing period that sterilization should be insisted upon.

Even in the most suitable cases for suspension, namely, pure retro-displacements, I think one should be very reticent in advising or performing the operation; all other methods should be given a trial upon the following lines:—

(1) Proper reduction of the displacement. I have found it very much more satisfactory to rectify the displacement under chloroform to start with and then to fit the vagina with as large a Hodge pessary as it will hold comfortably. I then see the patient every three months and gradually reduce the size of the pessary if the uterus is keeping in good position, until in a year's time I remove the pessary for a few weeks at a time, gradually increasing the interval between the periods of wearing it until the patient is able to do without it altogether.

(2) When the vaginal outlet is very lax and the pessary will persist in coming out, it is advisable to do a resection of the outlet. In one case occurring in my practice the resection of the outlet cured the retroversion until a subsequent pregnancy, after which the condition relapsed, although there was no tear of repaired outlet. I then advised ventrofixation and sterilization, which the patient agreed to and which has proved an absolute cure. This patient had a large, bulky uterus, and I thought that it would be more satisfactory to do a deliberate fixation with sterilization than attempt a suspensory operation and risk the possibilities of trouble in a subsequent pregnancy and also the probability of the suspensory ligament being too weak to support the uterus.

In 5 cases of retroposition with slight amount of descensus where the vagina would not retain a pessary, I have resected the outlet and got perfect position of the uterus without relapse of the condition, although the patients were of the working class. There is, of course, no doubt that there are many cases where the displacement is of long standing and where there are adhesions binding down the uterus where one must do a suspensory operation right away without trying any of the other methods, and then comes the question which method of suspension will one follow.

(3) We have the choice of three main methods, viz.: (1) Kelly's

operation or the suspension of the uterus; (2) the various methods of intra-abdominal shortening of the round ligaments, based upon Gilliam's operation, such as the Gilliam-Fergusson and Gilliam-Crossen operations; (3) ventrofixation with sterilization. I think the last of these should be reserved for women almost at the menopause with bulky uteri or for women whose lives have been a series of obstetrical accidents, as one patient once described her life to me.

The second alternative, the Gilliam modifications, is certainly in most instances quite safe from the point of view of future pregnancies and labours as the round ligaments should expand *pari passu* with the uterus and not bind it to the abdominal wall.

The advocates of this type of operation make the most of the fact that it does not involve the formation of a band of adhesions free in the abdominal cavity which they allege is likely to cause obstruction of the bowels.

I think that this possible complication of suspension is rather a bogey as only one or two cases have been recorded and these happened immediately after the operation and were probably due to the operator being in too great a hurry to finish the suturing and neglecting to see that no bowel was included in the sutures.

From the point of view of the general practitioner who has a leaning towards surgical treatment of such conditions but who only gets occasional opportunities of operating, I think that the Gilliam type of operation has the disadvantage of being more difficult to perform than the suspensory operation of Kelly, and there has not been a sufficient number of cases by the advocates of the former type of operation dealing with the results in subsequent pregnancy, to warrant one with only a fair working knowledge of surgery embarking on a rather difficult operation when the Kelly operation is so comparatively simple, and, if proper precautions are taken to avoid undue fixation, fairly free from danger as regards subsequent pregnancy. An operation for a displacement of the uterus is not undertaken in a hurry so we may make pretty sure of the thorough disinfection of the parts involved and consequently lessen the risk of sepsis attacking the wound and leading to an unlooked-for fixation.

Personally, I endeavour to give a week's preparation. I get the patient into bed towards the end of a menstrual period, and when the period is over I start her with a 1 in 2000 biniodide bath every night for four nights and the same strength of vaginal douches morning and evening. Three days prior to operation the parts are shaved and a 1 in 40 carbolic soak applied for 24 hours. After that I have the skin of the abdomen painted with a saturated solution of picric acid in spirit and a sterile pad of gauze and wool applied which is not removed until one is ready to operate; I use no scrubbing immediately prior to operation. I find this method of preparation exceedingly satisfactory for all laparotomies where time is no object.

The bowels are regulated by a small dose of cascara every night, and no strong aperient is given the day before operation. Ordinary light diet is given until six hours before operation, after which all food is withheld. I think that this method of regulating the bowels minimizes the chance of anæsthetic sickness, which it is advisable to avoid as far as possible when such delicate stitching is utilized.

The after treatment of my cases has all been conducted on the lines laid down by Kelly and quoted on p. 148, and a well-fitting belt is worn for six months. None of my cases has developed ventral hernia which most writers state is more frequent after this operation than after any other laparotomy.

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SELECT CLINICAL REPORT.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class.)

An Early Case of Chorionepithelioma Uteri.

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The following case is chiefly of interest from the clinical point of view, being one in which a chorionepitheliomatous uterus was successfully removed within five weeks of the passage of a hydatidiform mole. Now, 14 months later, the patient is alive and well, with nothing to suggest either recurrence or dissemination. Microscopically the specimen is a typical chorionepithelioma malignum with a preponderance of cells of the intermediate type.

Clinical History.

The patient, who was 45 years of age, had had four children, aged respectively 16, 13, 9 and 6 years.

On April 9 1911 she commenced to have uterine hæmorrhage after six weeks' amenorrhœa. The bleeding, which was not severe, continued for ten days, and during this time she remained in bed. On April 26 she was well enough to leave home for the seaside, but on May 20 the bleeding started again. She immediately set off home, but lost a lot of blood on the way, and became so ill that she had to break her journey. Later, she was able to proceed home, where she was seen by one of us the following day. Some small masses of vesicular mole were found in the blood-clot which she had passed the previous day. She was now very anæmic and ill, with a high temperature and an offensive vaginal discharge. The uterus was enlarged, but not unduly for the length of time she had been pregnant, as it is in some cases. The uterus was dilated, and as it could not satisfactorily be cleared out with the finger it was curetted. When this had been done the interior of the uterus felt quite smooth. The material removed consisted of vesicular mole,

An early case of chorionepithelioma uteri. The body of the uterus only has been laid open.

portions of apparently unaltered placenta, and stinking blood-clot. The curettings unfortunately were not examined microscopically, but there was nothing in their naked eye appearance to suggest malignancy.

For almost five weeks the patient had no return of the hæmorrhage; then on June 24 she started to bleed profusely again. She lost consciousness, the conjunctival reflex disappeared, and it was thought she was going to die. She gradually rallied, and was again seen by one of us later in the day.

On June 26 the uterus was examined under an anæsthetic, when a spongy mass adherent to the posterior wall of the body of the uterus was discovered. It was difficult to define at the margins as it collapsed somewhat on pressure, and it was so firmly incorporated with the uterine wall that it could not be detached with the finger. A probable diagnosis of chorionepithelioma was arrived at, and panhysterectomy by the abdominal route was performed there and then. It was an ordinary straightforward operation. The patient gave rise to some anxiety for a few days on account of her profound general weakness. Thereafter she picked up quickly, and is now, 14 months after the operation, in good health and free from any sign of recurrence or dissemination.

Naked Eye Characters of Specimen.

The *uterus* (see plate) is uniformly enlarged to about three times its normal size. It has been laid open posteriorly, showing a somewhat enlarged cavity, and, adherent to the posterior wall near the fundus, a localized, soft, friable mass, obviously in great part composed of blood-clot. This shaggy growth, which is about the size of a small walnut, is infiltrating the uterine muscle in an irregular fashion. Although the bulk of it is dark purplish in colour there are pale areas scattered through it, and notably a narrow, irregular, pale zone at the spreading margin. There is no naked eye evidence of deep invasion of the myometrium, which presents merely the appearances seen in a somewhat hypertrophied organ. The remainder of the uterine cavity is smooth-walled, without any evidence of new growth, and the cervix is normal.

Both *ovaries* are considerably enlarged, and contain numerous cysts of various sizes, some of which are apparently lutein cysts.

Microscopic Examination.

Many blocks were taken from different portions of the tumour and uterus, and the following description is a general one based on these.

It may be stated at once that the microscopical characters are those of a chorionepithelioma, in which the intermediate or wandering cells predominate, but also showing in parts typical multi-

nucleated syncytial masses and groups of Langhans' cells. The total amount of living tumour tissue present is small, and the bulk of the growth is composed of old and recent blood-clot and masses of necrotic tissue with foci of polymorphonuclear and round-cell infiltration. The intermediate cells are present in large numbers, forming solid masses of tumour and also strikingly invading the uterine muscle. The individual cells vary enormously in size and shape as well as in the number and character of their nuclei. Indeed there appears to be every gradation from the typical small intermediate cell with a single large and irregular nucleus to the typical plasmodial mass with numerous small and fairly regular nuclei. Some of the intermediate cell nuclei are of enormous size and of very extraordinary shape, more particularly in the case of the invading cells. In addition to the general infiltration of muscle by individual wandering cells there is well-marked invasion of the veins and venous sinuses of the myometrium by masses of growth, composed also for the most part of intermediate cells. Some of the vascular channels, however, even at a considerable distance from the primary growth, contain typical masses of syncytium and Langhan's cells, but this is exceptional. So far as can be determined from the examination of a considerable number of sections, the invasion of the uterine veins does not extend more than about half-way through the thickness of the muscular wall. Langhans' cells and plasmodium are best developed in certain areas of the primary growth. They present the usual characters, the latter with deeply-staining ground-glass cytoplasm and numerous small darkly-stained nuclei, the former clear vesicular cells with large vesicular nuclei, and often showing mitotic figures. One large dropsical and necrotic villus is seen in the midst of a mass of intermediate cells; it is the only one found. At the margins of the growth there are portions of much altered endometrium, and elsewhere one detects cell-masses suggestive of persisting decidual remnants.

Commentary.

The prognosis in chorionepithelioma, while very variable, is on the whole exceedingly bad. In 87 cases collected by Lockhart,[1] *i.e.*, all the recorded cases between 1900 and 1905, there were but 27 recoveries, a death-rate of 69 per cent. Much more instructive are the statistics of the cases collected by Teacher.[2] These number 188, of which 99 were submitted to radical operation with a recovery rate of 63·6 per cent. Of the 89 cases not operated on only two recovered, so that the recovery rate for the whole series is reduced to 34·2 per cent.

The factors which determine the degree of malignancy are very obscure. It is an interesting and well recognized fact that cases which are associated with a hydatidiform mole are much less

malignant than those which follow an ordinary pregnancy. This is shown by both Teacher's and Lockhart's figures, although these show a marked discrepancy with regard to the relative recovery-rate after full-term delivery and after abortion.

Nature of Pregnancy.	Percentage of Recoveries.	
	Teacher.	Lockhart.
Hydatidiform mole	46·6 ...	47·5
Abortion	33·9 ...	36·25
Confinement at term	20·4 ...	45·68

In view of the statistics already quoted there can only be one opinion as to the propriety of operative interference in cases of chorionepithelioma. The real difficulty is in the diagnosis, and especially in the early diagnosis of the case. It has been stated by some observers that in certain cases operation may lead to a benign case becoming rapidly malignant. Such a problematical contingency weighs little alongside Teacher's statistics.

In addition to cases of spontaneous cure even after the development of secondary deposits, there are on record instances of recovery following removal of the primary growth where well-marked secondary deposits have been left behind. The actual mechanism of spontaneous healing of secondary growths in the lungs has been studied by Teacher [3] in a case where the primary lesion was rendered more or less innocuous, so far as being a constant source of tumour emboli is concerned, by thrombosis of the uterine veins.

In very many cases, on the other hand, although there is no evidence of metastasis at the time of operation, extirpation of the uterus is followed by rapid recurrence and dissemination. Obviously the earlier the case is operated on the less likely is such a catastrophe to occur.

The only certain conclusions to be drawn from these data are that the malignancy of these growths varies immensely, and that it is impossible clinically to formulate a certain and definite prognosis in a given case. Will a histological examination of the tumour help us? Here there is considerable division of opinion. Hitchmann and Christofoletti [4] conclude that there is no histological distinction between cases with a rapid malignant course and those benign ones which cure spontaneously, while Marchand [5] says: "There is no such thing as 'absolute malignancy,' and no absolute histological indication of 'malignancy.'" Velitz,[6] on the other hand, regards the presence of intermediate or wandering cells as evidence of degeneration, and therefore of favourable import. In this view Lockhart [7] concurs. Schmauch [8] believes that "the simple presence of Langhans' cells in large numbers and their appearance in foci between the muscle cells will always be sufficient to declare the case to be malignant."

In the present instance, after the patient had recovered from the effects of the operation, a favourable prognosis was formulated on the following grounds:—

1. The case was operated on at a very early stage, viz., within five weeks of the passage of the mole and eleven weeks after the commencement of symptoms. Abdominal panhysterectomy was the operation of choice.
2. There was remarkably little secondary inflammatory mischief.
3. The case followed a hydatidiform mole and not a normal pregnancy.
4. The growth was small in size, and, although there was well-marked invasion of the myometrium, this did not appear to extend more than half-way through the thickness of the wall.
5. There was no evidence of dissemination either into the vagina or elsewhere.
6. There was a striking preponderance in the tumour of intermediate or wandering cells, with a comparatively scanty formation of syncytium and Langhans' cells. It is to be noted, however, that masses of the latter were found in some of the sinuses of the myometrium, and that this, according to Schmauch, is clear evidence of the malignancy of the growth.

Attention is directed to the fact that both ovaries were the seat of lutein cyst-formation, a phenomenon which has frequently been observed in cases of chorionepithelioma and hydatidiform mole, and which is regarded by some observers as a possible etiological factor. References to the literature of this subject will be found in a paper by Malcolm, Bell and Lockyer,[9] in which a case very similar to the above is described in detail.

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THE LATE SIR WILLIAM JAPP SINCLAIR,
M.A., M.D., M.R.C.P.

Obituary.

SIR WILLIAM JAPP SINCLAIR, M.A., M.D., M.R.C.P.

Near the end of the year 1900 the late Sir William Sinclair invited a number of members of the North of England Obstetrical and Gynæcological Society to dine at his house in Manchester. After dinner he explained that he had called us together in order to ask if we did not think that there should be a monthly journal devoted to the obstetric and gynæcological doings of the British Empire. Leeds, Liverpool, Manchester and Sheffield were fully represented at this dinner. The history of obstetric journalism in this country was discussed, and when the need for a new journal had been admitted by all present, Sinclair asked us all to dine with him again three months later. At that time Dr. A. W. W. Lea and the present writer were Sinclair's assistants, and the very day after the dinner, the three of us began writing letters about the proposed journal to all the holders of obstetric and gynæcological appointments whose names we could discover within the British Empire. We wrote 312 letters, and received 311 more or less favourable answers. These and the suggestions they contained were considered at the second dinner; details were subsequently arranged, and the first number of this journal appeared in January 1902.

William Japp Sinclair was born in Lawrencekirk, N.B., in the year 1846. He graduated M.B., C.M., in Aberdeen with first class honours in 1873, and took the degree of M.D. in 1875. In 1873 he became House Surgeon to St. Mary's Hospital, Manchester, and, later, he was House Surgeon to the Northern Hospital for Women and Children. In 1875 he visited Vienna to study his chosen subject, and in the same year he was elected to the honorary staff of the Southern Hospital for Women and Children. Here he continued his work until the amalgamation of his hospital with St. Mary's in 1905 formed the institution now known as the St. Mary's Hospitals.

Sinclair became Professor of Obstetrics and Gynæcology in the Victoria University in the year 1888, and he completed his last course of lectures only a few weeks before his death. He was President of the Manchester Medical Society in 1899, and was knighted in 1904.

A good classical scholar, Sinclair had a fine knowledge of English, French and German literature apart from his wide medical reading. He was an admirable writer, and would have made a magnificent editor for a big political journal. Indeed he was a keen

politician besides showing his public spirit as a town councillor and on the judicial bench. A Liberal originally, he parted company with some of his old friends on Home Rule, and took an active part in several Unionist campaigns. Later he was an enthusiastic Tariff Reformer. Brilliant in conversation, and very efficient in debate, he had great social gifts and was brimful of anecdote, reminiscence and repartee. As an after dinner speaker he was in the first rank. Though he never learnt to suffer fools gladly, he was generous to a fault and hospitable to three o'clock in the morning. His powers of organization were well shown at the foundation, in 1890, of the North of England Obstetrical and Gynæcological Society. Sinclair was the first general secretary, and the rules then drawn up were a model of simple efficiency. The main points were that meetings should be held in rotation in Leeds, Liverpool, Manchester and Sheffield, and that the members should dine together after every meeting. The result was that the gynæcologists of the four towns have formed one happy family for over thirty years. Sinclair was President in 1893 and again in 1904, and most of his ideas were worked out and advanced toward their final form at meetings of the Society.

Of Sinclair's earlier writings, the most important was his monograph on gonorrhœa. He was always deeply interested in cancer of the uterus, and was a pioneer in vaginal hysterectomy. Later he was a strong advocate of paravaginal section as a means of extending the scope of the operation. He never took up abdominal operations for cancer, and has been heard to refer to them as "bloody vivisections." Whatever may be the ultimate fate of "ventrofixation," reading would probably show that, for a long time, Sinclair and one French writer were the only operators who advocated the insertion of the sutures into the anterior surface of the uterus below the level of the tubes. He realized before other people that the disasters which followed the operation were due to the fixation of the fundus or the posterior wall of the uterus. After doing Alexander's operation 43 times Sinclair gave it up altogether. He would never do an anterior colporraphy, and, in cases of prolapse, relied upon extensive perineal repair with ventrofixation or pessary. He was an enthusiast in Cæsarean section, and for years he never performed a craniotomy. Occasionally he would deliver by vaginal section; but he had no great opinion of symphysiotomy. In the early days of operations for fibroids he evolved a technique of his own which he employed to the end. One of his minor aims was the introduction of the manufacture of laminaria tents as an industry for the crofters of Western Scotland. Puerperal fever was a subject which fascinated him in a way which led up to his fine work on the life of Semmelweis in 1909. He was always in favour of the registration and training of midwives, and gave endless time and labour to the subject. His

work for the Central Midwives' Board will be described by another hand.

In a few words, Sinclair was a man with a magnificent brain, who was a pioneer of modern gynæcological surgery when it was struggling into the existence made possible by the antiseptic method. His work was largely done by him alone, independently of outside stimulus or suggestion. His gifts of expression were such that his ideas lost nothing for want of forcible exposition, and this accounts for the mark he has made upon the gynæcological thought of his time.

Sinclair's health had been failing for two years or more. His heart finally failed, and after a few days' confinement to his house he died on August 21 1912.

W. E. F.

Sir William Sinclair and the Journal.

It is well known to all our readers that the idea of founding a Journal of Obstetrics and Gynæcology of the British Empire was Sir William Sinclair's, and the main lines on which it has been established were his also. He was a man of much imagination, and the idea of establishing a periodical representative of our great Empire appealed strongly to him.

At first he took a large share in its work, both literary and editorial, and frequently attended the editorial and other committees. For some time past his attendance had been rare.

Sir William Sinclair and the Central Midwives' Board.

Sir William Sinclair was an original member of the Central Midwives' Board, and only ceased his membership in April last. He took a great interest in the midwives' question, and was very active in the early days of the Board when the Act had to be put into working order and the rules framed. The labour entailed in this can only be realized by those who have had to work a new Act of Parliament, especially so contentious a measure as the Midwives' Act. A Bill is drawn more or less by one person, who has the picture more or less complete in his mind. Before it is brought in it is probably somewhat altered at the instigation of its promoters. It then passes through the Houses of Parliament, where it receives "amendment" from various quarters, and emerges anything but a "picture." Those to whom it falls to set the Act in operation have to reconstruct some sort of a picture before it can be administered, and this is the labour which has been performed by the Central Midwives' Board in the earlier years of its existence. It is now in its tenth year.

As a committeeman Sir William Sinclair had certain qualities and certain defects. When master of a subject he was clear in statement, though unfortunately difficult to hear, and was forcible in argument. He was not, however, an easy colleague, and he accepted defeat badly. Many will remember the letters which he wrote to the Medical press under such conditions, about which the less said the better. He was withal a man of a warm heart, and his "adversaries" were often all the time his personal friends.

In the last few years of his life he scarcely came to the Board at all, and when he came seemed neither to know nor to be interested in its proceedings. This was probably due to a certain extent to failing health; but it was rather his habit to start projects and then to drop them. We are all composite, and no one ought to be too proud to ask to be judged by his best rather than by his worst. Sir William Sinclair's best was unusually good. His best in medical literature was probably his work on Semmelweis, which is quite admirable. Let us wish him Post tot discrimina pacem.

F. H. C

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

LIST OF COLLABORATORS:

LONDON. Alban Doran, F.R.C.S.; S. Jervois Aarons, M.D.; J. Barris, M.B.; C. White, M.D.; J. A. Willett, M.D.; J. Wyatt, F.R.C.S.
EDINBURGH. Miss J. H. Filshill; R. W. Johnstone, M.D.; James Young, M.D.
GLASGOW. E. H. L. Oliphant, M.D.
ABERDEEN. W. R. Pirie, M.B.
MANCHESTER. J. S. Young, M.D.
BIRMINGHAM. H. B. Whitehouse, M.S.
LIVERPOOL. H. Leith Murray, M.D.
SHEFFIELD. W. W. King, M.B.
DUNDEE. J. A. C. Kynoch, M.B.
CHELTENHAM. C. J. N. Longridge, M.D.

GYNÆCOLOGY.

Genital Lesions in Cases of Insanity.

GUICCIARDI and LEONI (*Annali di Ostetrica*, July 1912) discuss the views held by Professor Bossi regarding the probability of gynæcological lesions being a cause of mental alienation. After analyzing various cases described by Bossi in which they fail to trace this causal relation, they give results of their own examination of 91 out of 108 selected patients in the asylum of Novara.

In 48 per cent. of the cases the genital organs were normal, while in 44, pathological conditions were found. This average closely approaches that which occurs in women who show no signs of mental disturbance. In nearly half the cases, the lesion consisted simply of cervical erosions which neither clinically nor experimentally can be shown to cause general toxæmia. No functional alterations of the liver and kidney could be detected, as in cases where real auto-intoxication occurs. In the remaining cases, lesions were constituted by displacements, with or without prolapse of the vaginal wall. The uterus was freely moveable and reducible and in only two cases was its volume enlarged. A hereditary tendency to mental disease was known to exist in most of the patients. Many had been dismissed and re-admitted several times, leading in some cases to complete recovery. This alternation of periods of amelioration and exacerbation should be carefully studied in relation to physical changes. Whilst in many cases, mental disturbance occurred at puberty, in others there was a history of repeated pregnancies and lactations. In the puerperal state, mental disease seems indisputably to be due to a toxæmia, ovular in origin, and in pre-disposed individuals, mental symptoms may occur without the auto-intoxication reaching a degree sufficient to produce eclampsia. Two factors which contribute to this auto-intoxication, and which are somewhat underrated, are obstinate constipation and physical exhaustion. The latter factor bears no absolute relation to the number of previous pregnancies, but seems to be due to variable physical and social causes. The pheno-

menon of amenorrhœa, which frequently occurs in cases of mental drangement, can scarcely be regarded as its cause since menstruation often returns spontaneously and becomes regular without any corresponding mental improvement following.

The final conclusion drawn by the investigators is that, in the cases they have studied, the relation between serious mental symptoms and slight uterine affections is too disproportionate to justify the theory that the mental state is secondary to the physical. J.H.F.

Fatal Result of Camphor Oil used as Preventive of Post-operative Peritonitis.

RÜBSAMEN (*Zent. f. Gynäk,* Nr. 31, 1912) reports a death after the employment of 170 ccm. of 10 per cent. camphor oil left in the abdominal cavity at the end of an operation, in which an intraligamentary cyst was removed along with the uterus. This treatment was adopted in accordance with the practice suggested and described by Hirschel, Pfannenstiel, and Hoehne. After the operation, the pulse became rapid, there was lividity of the face, sickness, headache and dryness of the skin. The following day the tongue was foul, the pulse rate was 160, there were delirium and elevation of temperature. Death occurred on the next day. A sectio was made, especially with the object of excluding septic peritonitis. Neither ærobic nor anærobic cultures were obtained from any part of the abdomen.

The author intends henceforth to use a 1 per cent. preparation of camphor oil. J.Y.

Spontaneous Ulceration of the Branches of the External Iliac Artery in Appendicular Abscess.

PATEL and MURARD (*Rev. de Chirurg.,* 1912, no. 8, p. 117) record two cases of spontaneous ulceration of branches of the external iliac artery which resulted in sudden and fatal hæmorrhage five and nine days respectively after the opening and drainage of appendicular abscesses. In both cases this accident was due partly to the peculiar inflammatory reactions of the walls of the vessels in contact with the pus, aggravated by the condition of general intoxication, and partly to the pressure of the drainage tube. As prophylactic measures they urge the necessity of early incision in appendix abscesses and that the drainage tube should be inserted as superficially as possible and away from the main vessels. Where this is impossible the drainage tubes should be surrounded by gauze. The patient should also be completely immobilized, and the general infection combated. F.E.T.

Formation of Artificial Vagina from Small Intestine.

PAPANICOL (*Zent. f. Gynäk.,* Nr. 31, 1912) reports a case in which this procedure was carried out according to the method described by Baldwin. It is very similar to that recorded by Stoeckel in the *Zent. f. Gynäk,* Nr. 1, 1912, and abstracted in this Journal in July of this year. The article includes an account of the literature.

The patient was 26 years old. The mammæ were well developed, as also the pubic hair. There were no developmental abnormalities in the family. She had a sister two years younger who was married and had several children. The patient had always been healthy, except for periodic monthly attacks of headache. Menstruation was absent. The external

genitals were normal, but the vagina was almost completely absent, being represented only by a small sac 8—10 mm. deep. On rectal examination no internal genitalia were palpable.

By means of a transverse incision the recto-vesical space was opened up to the peritoneum and packed with gauze after which the abdomen was opened. Both ovaries were found to be normal, but placed unusually high, *i.e.*, in the iliac fossæ. The uterus was represented by a knob the size of an olive. A piece of small bowel 25 cm. long and 32 cm. from the cæcum was isolated as described by Baldwin, the gut being united by end to end anastomosis and the edges of the mesentery being united by a continuous suture. The freed piece of bowel was encircled by a strand of silk and by this pulled down bent on itself till its apex was at the vulva by means of forceps passed through the lower wound. Here it was stitched all round and then opened. J.Y.

Chronic Cystitis of the Trigone and the Vesical Neck.

Edgar Garceau (*Surgery, Gynæcology and Obstetrics*, August 1912) discusses the diagnosis and treatment of this condition. The ætiology is obscure but may be in some way dependent on pelvic congestion. The symptoms are frequent painless micturition with or without tenesmus. If there is an associated urethritis scalding on urination will be a prominent symptom. Even in long standing cases the urine may be quite clear and only contain epithelial cells and perhaps a few red blood cells. Sometimes, however, the urine is cloudy and a quantity of pus is present in the deposit. On cystoscopic examination the vesical trigone will be found swollen and inflamed. At times small polypi and cysts develop and these may at first sight be mistaken for an early papilloma of the bladder.

Treatment consists in the application of protargol and then silver nitrate to the base of the bladder. In the worst cases it is necessary to curette the whole vesical trigone. Since the disease is very chronic and resistant to treatment a guarded prognosis must be given. W.W.K.

Uterus Didelphys.

J. A. G. Hamilton (*Australian Med. Gazette*, vol. xxxi, no. 19, p. 489) records two cases of this deformity, the first was associated with a right hæmatocolpos. An account is given of the development and diagnosis of this abnormality. J.A.W.

Menstruation without Ovaries.

Palmer Findley (*American Jour. of Obstet.*, July 1912) is of opinion that there is no convincing proof that such an event is possible in the absence of ovarian tissue; that when a woman continues to menstruate at regular intervals after complete double ovariotomy it must be assumed that she is still the carrier of ovarian tissue. He quotes the argument of Dr. Gellhorn for the "habit of menstruating" aided by the added blood supply coming through omental tissue adherent to the uterus, but considers this theory cannot be accepted without qualification without excluding the possible existence of accessory ovarian tissue; and he believes this to be a physical impossibility in the living subject.

The author concludes his article by stating that there is need for further investigation of this important subject. S.J.A.

The Treatment of Retroflexio Uteri.

MAYER (*Zent. f. Gynäk.*, Nr. 32, 1912) believes that the importance of retroflexion of the uterus has been greatly exaggerated. From a study of 1000 cases in the Heidelberg clinic of v. Rosthorn he has come to the conclusion that the local symptoms associated with a backwardly displaced uterus are not caused by the retroflexion but by the concomitant complications of the genital apparatus or by neurosis—if the patient knows of the existence of the displacement. He believes that pain in the back is of nervous origin and that the frequently present bladder symptoms and the bearing down are due to an accompanying prolapse. In this connection the results of 171 operations are interesting. Abdominal fixation was carried out for pure retroflexion and vaginal fixation for retroflexion with prolapse. After the vaginal operation 60 per cent. of the patients remained free of symptoms, whilst after the abdominal there were only 25 per cent.

The same independence of the "orthopædic" and the functional results is seen by a study of 142 cases treated by the Alexander-Adams operation. There was a disappearance of symptoms in two-thirds of the cases, though in half of these subsequent examination showed the uterus still to be in a bad position. In these the cure was due to suggestion. In the remaining third there was a recrudescence of the symptoms in spite of the uterus being in a normal position.

The author's conclusions are as follows:—Uncomplicated retroflexion usually causes no symptoms and requires no treatment. What demand treatment are the local complications, such as prolapse, endometritis, enteroptosis, constipation, and inflammatory changes in the utero-sacral ligaments. Amongst the general complications are anæmia, chlorosis, neurasthenia, hysteria, deficient nutrition, and infantilismus. J.Y.

Complete Inversion of the Uterus.

FRANCIS PAIN (*Australian Med. Gazette*, vol. xxxii, no. 1, p. 2) describes a case of acute inversion of the uterus which occurred in his practice. The inversion was spontaneous, the placenta and inverted fundus suddenly appearing outside the vulva. The placenta was detached and an attempt was made at reduction by pressure with the closed fist. This failed but by indenting the fundus close to the left Fallopian tube the inversion reduced itself without further manipulation. There was very little shock or bleeding and the patient made a satisfactory recovery. J.A.W.

Prolapse of the Uterus.

JOHN BALDY (*Surgery, Gynæcology and Obstetrics*, August 1912). For the treatment of the less severe forms of prolapse in women past the child-bearing age, the author amputates the uterus and sutures the ovarian arteries and round ligaments to the cervical stump. In the worst cases he finds it necessary to unite the amputated cervix to the anterior abdominal wall just above the pubes, and he has never found suppuration follow this procedure.

Prolapse occurring in women, in whom it is desirable to retain the child-bearing function, is treated by suturing the round ligaments to the posterior wall of the uterus. The author states that he has cured one case of complete prolapse by this operation alone. W.W.K

Gymnastics and other Mechanical Means in the Treatment of Visceral Prolapse and its Complications.

FRANKLIN H. MARTIN (*Surgery, Gynæcology and Obstetrics*, August 1912) considers that general visceral prolapse leads to intestinal stasis, digestive disturbances, neurasthenia, etc., and is also an important ætiological factor in the production of Lane's kink and other intestinal bends. If definite pathological lesions are present they must be treated by surgical intervention. But the writer believes that numerous cases can be saved from operation by the systematic persistence in the exercises and the use of various belts which he describes; and that, where operation is necessary, the cure can be completed in this manner. W.W.K.

The Prognosis in Radical Abdominal Operation for Uterine Cancer.

FRED TUSSAG (*Surgery, Gynæcology and Obstetrics*, August 1912) finds that the percentage of operability for his 115 cases of carcinoma of the cervix is just over 20 per cent. Sixty cases of the radical operation have been collected from surgeons living west of the Mississippi. For the purposes of analysis these have been grouped as follows :—

(*a*) Cases in which the diagnosis was only made by microscopic examination—primary mortality nil.

(*b*) Cases with a well defined ulcer but no parametric involvement—primary mortality 12 per cent.

(*c*) Cases in which though the parametrium was involved the cervix was partly movable—primary mortality 23 per cent.

(*d*) Cases with infiltration of the parametrium and commencing involvement of the bladder but still not hopelessly inoperable—primary mortality 66 per cent.

The total primary mortality for all the cases is therefore 30 per cent. The ultimate mortality from recurrence for cases operated upon five years ago or more is 58·4 per cent.

The author concludes that the radical operation for cervical cancer is not in itself dangerous, but only becomes so from attendant complications such as injury to the bladder, bleeding, etc. The percentage of recurrences is distinctly less after this operation than after simple vaginal hysterectomy. In "very advanced cases," *i.e.*, group (*d*), the immediate operative risk is so great and the likelihood of recurrence such that these cases had better be classed as inoperable. W.W.K.

The Radical Abdominal Operation for Carcinoma of the Cervix Uteri, with a Report of Twenty-eight Cases.

HOWARD TAYLOR (*Surgery, Gynæcology and Obstetrics*, August 1912) finds that his percentage of operability for cancer of the uterus for the past two years is 70 and 80 per cent. respectively. Since obviously advanced cases are not referred to the specialist, he attaches more importance to what he terms the "community operability." An attempt has been made to arrive at this figure by an analysis of the fatal cases reported in the New York area. Only twenty-five per cent. had had any form of operation, other than cauterization, and in a number of these the disease had invaded the rectum or bladder. Hence the "community operability" for New York is only 25 per cent.

In the author's series of twenty-eight cases the primary mortality is

10·7 per cent. Out of twelve cases operated upon over *two* years ago only six have been traced. One of these died from the operation, and the other five from recurrence. The author does not use Wertheim's clamp for the vagina. W.W.K.

Primary and End Results of Fifty-one Radical Abdominal Operations for Cancer of the Uterus.

REUBEN PETERSON (*Surgery, Gynæcology and Obstetrics,* August 1912). A study of the author's series of fifty-one cases of cancer of the uterus treated by the radical abdominal operation reveals the following facts :—

Of the fifty-one cases, eleven were operated on for cancer of the fundus uteri and forty for cancer of the cervix.

The percentage of operability was 23·4 per cent. of all cases of malignant disease of the uterus which the author has seen during the past ten years.

The primary mortality for all cases works out at 19·6 per cent., though this has been considerably reduced in the latter half of the series. Death was attributed to shock, shock and hæmorrhage, peritonitis, and embolus.

Only fourteen cases were operated upon more than five years ago. Out of these there were six primary deaths and three recurrences. Thus 62·3 per cent. of the patients who survived were alive and well five years or more after the operation. Six of the surviving patients had carcinoma of the cervix, and three of them have remained free from recurrence, while the two cases of carcinoma of the fundus have had no return of the disease.

The site of recurrence was found to be in the vaginal cicatrix in 87·5 per cent. of the patients who died, in spite of the fact that the author makes use of Wertheim's right-angle clamps.

In the whole series of cases glands were removed in twenty-nine, and though all were subjected to microscopic examination only five were found to be cancerous. With regard to this point the author is of opinion that glands should only be removed when the patient's condition is such that the necessary prolongation of the operation does not place her life in jeopardy. W.W.K.

Rare Metastases of Carcinoma of the Uterus.

BALLERINI (*Annali di Ostetricia,* July 1912) describes three cases of secondary carcinomatous nodules occurring after hysterectomy for the primary tumour, and discusses the question of transmission by direct transplantation of cancer cells on an abraded mucous membrane. He considers that if such an origin were possible in the first case, it is excluded in the other two. In the first case, which was inoperable, a myoma involved the body of the uterus. Later, secondary nodules appeared in the posterior wall of the vagina. In the second, a subserous interstitial myoma of the uterine body, total hysterectomy was performed by abdominal section. Six months later a secondary nodule was found on the vulvo-vaginal orifice. This was removed, and after five years, no return has been noted. In the third case, the diagnosis was carcinoma of the cervix with interstitial and subserous myomatous nodules in the body. Total hysterectomy was performed by the abdominal route. About a year after, the patient began to suffer from severe pain in the pelvis. A flat carcinoma was detected in the pouch of Douglas, and almost simultaneously nodules were found in the posterior wall of the right axilla about the level of the spine of the scapula and along the back of the right arm. A little later similar nodules appeared in the left axilla. The patient suffered excruciat-

ing pain in the back and arms, and died soon after. A post mortem examination was not granted.

Ballerini is of opinion that in the first two cases metastasis must have taken place by retrogression through lymphatics. Certainly in the second case transplantation could not have occurred on an intact mucous membrane. In the cutaneous metastasis of the third case, it is more probable that the malignant cells were carried by the blood stream.

J.H.F.

Extrauterine Pregnancy.

BACULESEN (*Revue de Chirurgie*, 1912, no. 6, p. 946) presents an elaborate statistical study of the 56 cases of extrauterine pregnancy which have occurred during the year in the Neckar Hospital, Paris. Amongst the antecedents of the 56 cases there were found :—(1) Abortion in 28 cases, or 50 per cent. (2) Inflammatory lesions of the genital organs : (*a*) metritis, 4 cases; (*b*) salpingitis, 5 cases; (*c*) leucorrhœa, 8 cases; (*d*) amputation of the cervix, 1 case. (3) Painful menstruation, 8 cases. The presence of tubal inflammation in only 9·5 per cent. of the cases is held to militate against Lawson Tait's view of the connection between salpingitis and tubal pregnancy.

As regards age no case was below 22, or above 40, the most common age being between 25 and 35.

Of the 56 cases 36 previously had been, and 21 had never been, pregnant.

Symptoms. Extrauterine pregnancy is a true cyclic malady, and becomes manifest either spontaneously or by its complications.

The symptoms are (1) those of normal pregnancy, viz., (*a*) modification of the menstrual periods, usually arrest (80·3 per cent.); (*b*) modifications of the breasts, which are rarely present; (*c*) digestive troubles, *e.g.*, vomiting and ptyalism; and (*d*) alterations of the genital organs, *e.g.*, enlargement, elastic consistence and displacement of the uterus, softening or patulousness of the cervix; and (2) those of the extrauterine pregnancy, which before rupture include slow and insidious or even violent pains, loss of blood *per vaginum*, either continuous or intermittent (81 per cent.), and expulsion of decidua and clots.

Diagnosis. The diagnosis of extrauterine pregnancy before rupture may present insurmountable difficulties, the physical signs not being sufficiently distinctive to give any certitude to the diagnosis. Nevertheless, cases which do not show any preliminary symptoms before rupture are rare, being found in 6 of the 56 cases.

Topography. The 56 cases comprised 28 of ampullary, 5 of isthmic, 2 of infundibular, and 1 of interstitial pregnancy.

Abdominal or ovarian pregnancy were not observed. Bilateral extrauterine pregnancy was found 3 times.

Treatment and results. Laparotomy was performed 35 times, colpotomy 20 times and in 2 cases, being moribund no intervention was undertaken.

In the 35 laparotomies, hysterectomy was performed 18 times, ablation of the uterine appendages of one side was performed 15 times and of both sides twice. The appendix was also removed on three occasions.

There were 5 deaths in the 56 cases, viz., two who, being moribund, were not operated upon, and three after laparotomy, from pyonephrosis, pulmonary congestion and pulmonary tuberculosis respectively.

Therapeutic indications. All cases of extrauterine pregnancy should be operated upon. To temporize in unruptured extrauterine pregnancy is to await rupture or other more or less formidable complications. F.E.T.

Double Ectopic Gestation.

L. B. LANCASTER and G. M. BURRON (*Australian Med. Gazette*, vol. xxxii, no. 2, p. 34). The patient was a nulliparous woman, æt. 24, who had been married for three years. Her menstruation had been regular and normal, the last period ceasing on February 14. After this date she occasionally passed some reddish-brown discharge and complained of a certain amount of discomfort over the lower abdomen. On May 5, 7, and 8 she had attacks of acute abdominal pain situated chiefly in the left iliac fossa. On opening the abdomen the peritoneum was filled with blood clot, some recent and some old. Both tubes were enlarged and adherent to the omentum and surrounding structures. Both tubes and the right ovary were removed. On examination after removal the right tube contained placental tissue and the left a gestation sac complete with a two months' fœtus. J.A.W.

Ovarian Pregnancy.

W. A. VERCO (*Australian Med. Gazette*, vol. xxxi, no. 19, p. 491) reports a case of ovarian pregnancy which came under his own care. The patient, a iii-para, had recurrent attacks of pain in the right iliac fossa which were diagnosed as appendicitis. There had been no amenorrhœa. Menstrual periods had been normal except that the onset of the two last had been delayed by four and five days respectively. There had been no other hæmorrhage from the uterus. On examination the right ovary was found to be distinctly enlarged and tender. The author's probable diagnosis was a small ovarian cyst with a twisted pedicle. The uterus was dilated and curetted but no decidual cast was found. On opening the abdomen the right ovary was found to be enlarged to the size of a turkey's egg with much interstitial hæmorrhage and was rèmoved. The right tube was healthy as were the left appendages. On cutting into the tumour a small fœtus was seen in a cavity almost in the centre of the mass and was hanging by a slim umbilical cord to its placenta. The duration of the pregnancy was thought to be about eight weeks.

Another case is recorded in the same Journal by Mr. Alfred Austin, in which the microscopic proofs of the presence of fœtal tissues in the ovary are given. J.A.W.

OBSTETRICS.

Biochemistry of Pregnancy.

LIEPMANN (*Munch. med. Woch.*, 1912, p. 1555) considers that his own biochemical researches, extending over several years, and also those recent optical researches of Ablerhalden (vide infra) have conclusively proved that there is a transference of placental constituents into the blood in pregnant women. He further affirms that it has been proved that the placenta in eclampsia is more poisonous than normal. H.L.M.

Biochemical Diagnosis of Pregnancy.

ABDERHALDEN (*Munch. med. Woch.*, 1912, p. 1305) details experiments, both dialytic and optical, demonstrating a reaction between pregnant plasma and placental tissue in mixtures of these. By these methods he has correctly diagnosed pregnancy in 70 cases. He has found the same reaction in healthy pregnant women as in eclamptics, but in the latter the

reaction is more difficult to complete. He has also introduced placental tissue into the peritoneal cavity of male, and non-pregnant female, animals, and later demonstrated in the circulating blood the presence of antagonistic ferments. H.L.M.

Complement Fixation in Pregnancy.

LEITH MURRAY (*Liverpool Medico-Chirurgical Journal*, January 1912, p. 181), in a review of work done in the Ashton Hall laboratories of Liverpool University, gives a preliminary account of his researches into the fixation of complement by pregnant serum in the presence of placental antigens. With a villar antigen prepared from a 2-months ovum, he has found this reaction well marked in the sera of 2—3½ months pregnancies. More fully developed normal placentæ and also eclamptic placentæ have all been negative.

Continuing his researches on the pathology of eclampsia and its relation to normal pregnancy, and with his belief that there is considerable evidence that the normally pregnant woman is protecting herself against a poison very comparable to reptilian venom, he has carried out a series of hæmolytic tests with cobra venom and pregnant serum. Sheep corpuscles have been used as an indicator and the serum has not been inactivated. In the later months of pregnancy a very large percentage of cases has shown an inhibition of hæmolysis. H.L.M.

Cobra Venom Hæmolytic Tests in Pregnancy.

v. GRAFF and v. ZUBRZYCKI (*Munch. med. Woch.*, March 12, 1912, vol. 59, p. 574) have demonstrated the hæmolytic power of inactivated pregnant serum on horse corpuscles in the presence of cobra venom. This reaction must be considered as a lipoid binding rather than a simple complement fixation. It is not present till the first half of the third month but thereafter is well marked till three weeks after delivery. It is also found in cancer (70 per cent.) and in controls (10 per cent.). H.L.M.

Method of Isolating Syncytium.

KIUTSI (*Zent. f. Gynäk.*, Nv. 30, 1912) believes that the biological activity of the placenta resides in the syncytium and, for the purpose of isolating this for experimental reasons, he has devised a special method. This consists in making use of the cysts of a hydatidiform mole. They are thoroughly washed in physiological saline solution to remove blood attached to their surface. They are placed in fresh solution and by means of forceps and scissors an opening is made in the cyst wall. The forceps are introduced through this and the opposite wall is seized and pulled on, thus turning the cyst inside out. The cyst is again washed in saline solution and with a fine brush the connective tissue lining is firmly washed off. This is repeated several times and thereafter the cysts thus treated are placed in saline solution in a centrifuge and centrifugalized for ten minutes. By this means the syncytial covering of the villi is isolated. J.Y.

Thyroid Disease in Pregnancy and Parturition.

EDWARD P. DAVIS (*Amer. Journ. Med. Sciences*, June 1912) describes fully four cases which have come under his own personal observation in addition to others obtained from the literature of the subject. Dr. Davis shows that many cases of thyroid enlargement are harmless while others

produce symptoms of metabolic disturbance, and a few by rapid swelling and presence on the trachea during labour may cause much anxiety. All cases of thyroid enlargement during pregnancy should be kept under careful observation and frequent urin-analysis made. J.A.W.

The Influence of Age on the First Pregnancy, Labour, and Puerperium.

R. MAREK (*Gynækol. Runschau*, 1912, Heft 14 and 15). Recent observers have shown that labour in elderly primiparæ is, on the whole, fraught with less danger than was supposed by the earlier writers. It is generally accepted that the necessity for operative measures is much more frequent in elderly than in young primiparæ. Ogata and others argue, on the grounds of immaturity, that the course of the first pregnancy is unfavourable in the very young, while Pomeloff considers their views untenable.

The following questions arise: What is the course of the first pregnancy, labour and puerperium? How much can be ascertained regarding the influence of age in these cases, and by what means can we recognize it?

Boudy, in his work on the same subject, investigated 1000 primiparæ between the ages of 14 and 27 years of age and declared that the most favourable age at which childbirth could happen was between 18 and 20. From the 23rd year onwards the conditions were correspondingly less favourable; on the other hand, the period from 14 to 17 years of age was not to be looked upon as unfavourable.

Of 1000 cases collected in the Olmützer lying-in hospital, the ages varied from 13 to 45 years. The writer divided his cases into six groups:—

Group	1	includes	60	primiparæ	of ages	13—17.
,,	2	,,	240	,,	,,	18—20.
,,	3	,,	260	,,	,,	21—23.
,,	4	,,	200	,,	,,	24—26.
,,	5	,,	140	,,	,,	27—29.
,,	6	,,	100	,,	,,	30—45.

The 13 years old case had a generally contracted pelvis and delivery took place by natural forces; there was some retention of placenta and secundines, also a perineal tear. The labour and puerperium were otherwise normal.

It is not easy to say whether an early or late onset of first menstruation influences the first childbirth. 19·7 per cent. of German girls start menstruation at the age of 14 years. Münder and Boudy found that young primiparæ invariably commence menstruating at an early age. From Boudy's figures we find that for the 14—17 year old primiparæ the earliest onset of menstruation occurs most frequently at 14, the next most common age is 13. In the 18—20 year old primiparæ the earliest onset occurs most frequently at 14, next, however, is 15 years, in order of frequency. With the exception of group 5, in order of frequency, first onset occurred at 14, 15, and (only in group 6) 16 years of age in the author's series. The later the first onset of menstruation, the later the first childbirth was observed after the age of 18. It is found that the number of instances of the appearance of the firstborn after several years of married life in elderly primiparæ is much larger than in younger ones, yet it is impossible to say whether the cause is due to late onset of the menses, sexual indolence, or social reasons.

As regards contracted pelvis, authorities are at variance. Some hold that it is a feature of the very young, others of the elderly primiparæ. In

the elderly subjects, Boudy ascribes the cause to rachitis. In the present series of 86 contracted pelves in primiparæ there was an average of 8·6 per cent., with a diagonal conjugate of 11 cm.; for all primigravidæ in the hospital, however, the average percentage was 10.

According to the cases under consideration, group 5 was the only one shewing a wide variation, namely 16 per cent. (in 22 cases). This is probably accidental, as statistics to hand shew that for one and the same locality the incidence of contraction of the pelvis varies considerably in degree.

The duration of pregnancy in many cases was normal. The majority, however, terminated early and were due to premature labour, and less frequently, to abortion. The frequency of abortion is difficult to estimate, and, cases of procured abortion excepted, occurs more commonly in multiparæ. Premature labour is much more frequent in elderly primigravidæ than abortion. In the Olmützer hospital 5 per cent. was the average number of all premature labours. Group 2 of this series gave 9·2 per cent. in 22 cases including one instrumental; group 6, 18 per cent. in 18 cases (one instrumental). Premature labour in elderly primiparæ was nearly four times as frequent as those in other groups. Several authorities quote similar high figures for the elderly subjects without assigning a definite cause for the condition of pelvic contraction.

Of intercurrent diseases affecting pregnant women, bronchial asthma and chorea are examples which necessitated instrumental labours in the Olmützer series of cases under consideration. Two cases of chondrodystrophia fœtalis were met with. Both children were delivered by Cæsarean section which is always indicated in these cases. With *x*-rays nothing of the fœtuses was discernible. Diseases due to the toxæmias of pregnancy (hyperemesis gravidarum, albuminuria, etc.) were most frequently met with in the elderly primiparæ. Eclampsia occurred in 11 cases (1·1 per cent.), the percentage for all cases in hospital was ·67 per cent.; in most cases the affection was met with during labour. Not a single instance of disease caused by pregnancy-toxæmia was met with in the youngest primigravidæ (*i.e.*, 13 to 17 years of age). Eclampsia occurred in 4 cases up to the 23rd year and in 7 cases after the 24th year.

The strength of uterine pains and the resiliency of the soft parts played the most important part in determining favourable labours. The older the primipara, the more troublesome labour tends to become. The duration of labour is generally longer, the older the primigravida.

The duration of the 3rd stage was about the same in all three cases, namely, 23 to 30 minutes. As Seitz pointed out, rigidity of the soft parts is a distinct disadvantage to the mother, and much more so to the child. Ruptured perineum occurred in 19·7 per cent. of cases, this accident was far more common in elderly primiparæ. Regarding the strength of uterine pains and elasticity of the soft parts it was found, that in very young primiparæ (14—17 years) long labours were due to weakness of the pains, and that the soft parts yield very easily, thus allowing of the passage of a fairly large head. It is held that owing to incomplete development of uterine muscle the pains are weaker than in older subjects. Elderly primiparæ experience long labours on account of weakness of the pains and rigidity of soft parts.

Premature rupture of the membranes proved to be a characteristic in elderly subjects of the series. Complications in the nature of ruptured perineum and injured soft parts were much more common following premature loss of amniotic fluid in elderly cases.

Although comparatively rare, 3 cases of placenta prævia were met with in primiparæ. Post partum hæmorrhage was found in most cases to be due to manipulative measures (expression of placenta, massage, etc.). Where manual removal of the placenta was required, the cause lay chiefly in the feeble contraction of the musculature of the placental site.

Forceps were used in 3·8 per cent. of cases and were employed twice as frequently in the elderly as in those from 24 to 26 years of age.

The number of cases requiring perforation of the fœtal head was decidedly large and occurred chiefly in those patients who were attended, in the beginning, at their own homes. Such cases were taken into hospital for the performance of this operation, either on account of contracted pelvis, or to shorten labour and thereby cut short sepsis where it had been introduced.

Cæsarean section was performed 17 times in this series, including 4 cases by the vaginal route; 10 cases had contracted pelves, the rest demanded the treatment on account of moribund conditions of the mothers.

261 mothers (26·1 per cent.) fell ill during the puerperium, 207 of these had puerperal fever. Analysis of tables shew that (1) febrile gonorrhœal affection was more common in the younger primiparæ; (2) intercurrent diseases occurred more frequently the older the subject; (3) the older the patient the more aggravated the disease. In spite of high temperatures the youngest subjects experienced a more favourable course than the rest.

The puerperal mortality worked out as follows: primiparæ ·7 per cent.; those taken into hospital, ·3 per cent.; for all cases treated in hospital, ·15 per cent.

The average weight of children of primiparæ, between 13 to 17 years of age, compared very favourably with that of older subjects. The heaviest children were those whose mothers were from 21 to 26 years of age.

The mortality of the newly-born was higher in primiparæ than multiparæ; especially in old primiparæ was this the case. Maceration of the fœtus occurred more frequently the older the mother. Still-birth was much commoner in the male children. The male children born prematurely of elderly primiparæ frequently died within the first 8 days. This feature was noticed to be more pronounced, the older the mother was over 24. Abnormal presentations occurred more frequently in elderly cases.

The author concludes: (1) That the age-factor in these cases is unimportant. (2) That abortion is comparatively rare in first pregnancies, while premature labour is much commoner in old primiparæ than in the young. Nevertheless the number of premature labours in young primiparæ slightly exceeds that of multiparæ. (3) The older the primigravida, the greater is the tendency to albuminuria and nephritis, and the less favourable the course of this complication. Eclampsia, while occurring more frequently in the elderly, is more fatal to the younger primiparæ. (4) The 23rd year is the most suitable age for first child-births. Physiologically, from the mother's standpoint, the most favourable period is from 18 to 23 years of age. Solely on the grounds of social economy (maternal responsibility), first child-births, in the child's interest, are unfavourable under 23 years of age. (5) While atony of uterine muscle and inelasticity of the soft parts in the youngest primiparæ do undoubtedly occur, they are much more frequently met with in the elderly cases, and are the cause of ineffectual pains, premature rupture of the membranes, increased number of instrumental labours, and increased mortality to mother and offspring. (6) That frequent examinations by doctors and midwives increase the risk of sepsis in primiparæ compared with multiparous women. Elderly cases should be

treated in hospital, or, in private practice, by a specialist. (7) That the prognosis is not as favourable in elderly primiparæ since the puerperal mortality is higher. (8) That, with increase in age of the mother, more males than females are born, the number of abnormal presentations is more frequent, and the tendency for still-born and macerated fœtuses to occur is greater. J.S.Y.

Industrial Employment of Married Women: Its influence on the birth rate and the sex ratio at birth.

HUGH R. JONES (*Lancet*, August 10, 1912) writes: "There is a widespread belief in Lancashire that the proportion of girl infants is much larger in those districts where many married women are employed in factories than elsewhere. And it occurred to me that an inquiry into the truth of the belief would not be uninteresting."

With the aid of tables giving the mean birth rate and the rate of infant mortality he first shows that a high birth rate is associated with a high infant mortality rate and vice versa a low birth rate with a low infant mortality rate. Then with other tables dividing towns where many women are employed and those where female labour is not used, he compares the rate of infantile mortality, the fertility and the sex ratio. The conclusions he comes to from this enquiry are as follows:—

(1) That the employment of married women in industrial occupations tends to diminish the birth rate.

(2) That such employment tends to the birth of a larger proportion of girl infants. (He does not discuss the significance of the sex ratio.)

(3) That low birth rates tend to the birth of a larger proportion of girl infants.

(4) That the rate of infantile mortality is higher as the proportion of employed married women rises.

Lastly he calls attention to the relative influence which the birth rate and the rate of infantile mortality exert on the number of survivors. With a low birth rate and a low rate of infantile mortality the number of survivors out of 1000 infants born is greater than with a high birth rate and a high rate of infantile mortality. But if the survivors out of the number of births per 10,000 inhabitants be calculated, it is found to be reversed. J.M.W.

A Further Report on the Relation of Thyroidism to the Toxæmia of Pregnancy.

GEORGE WARD (*Surgery, Gynæcology and Obstetrics*, August 1912), in a paper published in 1909, produced considerable evidence that the thyroid gland plays an important part in nitrogenous metabolism; and that the failure of this gland to hypertrophy, or its disturbed function from Graves' disease, is the cause of toxic pregnancy.

The present article deals with further studies in this direction, together with the clinical accounts of some cases treated on these lines.

Cases of toxic pregnancy are classified into two groups: (*a*) Cases having no Graves' disease. (*b*) Cases associated with Graves' disease.

The first group is frequently much benefited by the administration of thyroid substance either in the form of the dry extract or a serum. In toxæmias of the second group it is essential to determine whether the Graves' disease is in a condition of hyper- or hypo-thyroidism. In the former, rest, milk diet, and sedatives shoud be employed, and if these

measures fail, an anti-serum such as the cytotoxic serum of Beebe and Rogers should be administered. In the latter (hypo-thyroidism), thyroid substance should be given in the form of the dry extract.

The severity of the toxæmia must be judged by the nitrogen partition of the urine. An excess of ammonia nitrogen and undetermined nitrogen is indicative of a marked failure in metabolism. W.W.K.

The Treatment of Eclampsia.

FRANKLIN NEWELL (*Surgery, Gynæcology and Obstetrics*, August 1912) is of opinion that the symptoms of eclampsia are dependent on a failure of the organs of excretion, rather than upon a breakdown of the normal maternal metabolism.

The causes of death may be enumerated as follows:—acute cardiac dilatation, œdema of the lungs, cerebral hæmorrhage, necrosis of the liver, shock.

In order to prevent the further absorption of toxins the pregnancy must be terminated as rapidly as possible, but by a method which induces the least possible shock. In primiparæ with a closed rigid cervix, vaginal Cæsarean section is the best operation since it can be performed quickly and with the minimum amount of shock. In multiparæ, and primiparæ who are in labour, manual dilatation and extraction by version is a suitable method of delivery. Abdominal Cæsarean section presents the only chance of delivery in some cases but it is not the operation of election in eclampsia. The high blood-pressure is brought about by stimulation of the vaso-motor centres, and this irritability must be met by the administration of large doses of morphia. Though this drug undoubtedly hinders excretion, it is not contra-indicated in eclampsia, because the delay is due to vaso-motor spasm, rather than to a local lesion. Venesection and the administration of nitro-glycerin help to reduce the increased blood tension. Elimination is assisted by hot packs and saline infusions; the latter, however, should not be given to patients with much œdema. Believing that the intestinal tract is the most important channel of excretion, the author makes use of large doses of Epsom salts, introduced by the stomach tube, to promote free catharsis.

Æther, though not ideal, is the safest anæsthetic, and the author has yet to see any ill effects from its use. W.W.K.

The Treatment of Acute and Fulminant Toxæmia.

EDWARD DAVIS (*Surgery, Gynæcology and Obstetrics*, August 1912) advises that these cases should be treated upon the usual dietetic and eliminative lines, and that no attempts should be made to evacuate the uterus until labour has commenced. W.W.K.

The Indications and the Type of Operation to select in the Toxæmia of Pregnancy.

POLAK (*Surgery, Gynæcology and Obstetrics*, August 1912) throws no new light on this important question. His somewhat vague indications for the termination of pregnancy in toxic vomiting are as follows:—Toxic vomiting which resists rest, lavage, dextrose enemata, enteroclysis and presents a high ammonia ratio, persistent acetonuria and a maternal pulse rate of over 100 should have abortion induced. If the placenta is formed this should be done by means of the curette, but at a later period by anterior hysterectomy. Cases of pre-eclamptic toxæmia which resist dietetic,

eliminative and medicinal measures should have premature labour induced. While if convulsions have supervened the pregnancy should be terminated as rapidly as possible either by anterior hysterectomy if the cervix is closed, or by version if there is sufficient dilatation. W.W.K.

Hyperemesis in Pregnancy.

SEITZ (*Deutsch. med. Woch.*, 1912, p. 691) discusses this question and concludes that all the evidence proves it to be an intoxication by some chemical substance which alters the tissues in the same severe way as occurs in acute yellow atrophy. H.L.M.

Thrombosis of the Cavernous Sinus following Labour.

W. HULL (*Australian Med. Gazette*, vol. xxxi, no. 2, p. 566) records a case of thrombosis of the cavernous sinus involving the 3rd, 4th, and 6th cranial nerves. The patient complained of intense pain in the right frontal and temporal regions of her head, a few hours after labour, for which no cause could be found. Next day the urine was found loaded with albumen, there was impairment of vision, swelling of the right side of the face with chemosis, and loss of function of the 3rd, 4th, and 6th nerves. Later the chemosis became so great that it was impossible to see the eye. Twelve months later her condition was as follows:—Marked impairment of vision with a fixed immobile pupil; paresis of muscles supplied by the third nerve and complete paralysis of the left rectus; thickening of the tissues of the orbit sufficient to cause proptosis and œdema of the lids and neighbouring soft parts. Shortly afterwards she became pregnant. Again she had a similar attack during labour, but in this instance she lost consciousness for 24 hours and on recovery was amaurotic but sight soon returned to the right eye. The swelling of her eyelids and face was the same as on the previous occasion but to a less extent. Her present condition (June 1912) is shrunken right eye, left eye normal; hearing normal; no œdema of face or lids; the right orbital tissues shrunken. There is still a trace of albumen in the urine. J.A.W.

Pregnancy and Melanotic Sarcoma.

VALLOIS and DELMAS (*Bulletin de la Soc. d'Obst. et de Gyné de Paris . . . Montpellier*, etc., February 1912) show from a case under their personal observation that melanotic sarcoma is stimulated by gestation even more markedly than is generally supposed.

A woman, aged 41, had been three times pregnant, 9, 8, and 6 years previously and all the labours ended normally. There was no hereditary taint, nor history of any illness, until two years before the patient came under observation. Then Professor Tédenat, after relieving by operation a femoral hernia, removed a fungating melanotic sarcoma, as big as a pigeon's egg, from the integuments in the epigastric region. The patient noticed about two months later that firm, movable and painless lumps were in course of development, first in the left breast, then in the left and lastly in the right axilla. They caused her no inconvenience and they grew so slowly that she paid no attention to them. But seventeen months after the removal of the epigastric tumour the fourth pregnancy began. Hardly had the catamenia ceased than a general "sarcomatosis" commenced and proceeded with extreme rapidity. Black lumps appeared in the sacral region, flanks and thighs, and others could be defined on palpation deeper down in the same regions. Minute new growths developed on the skin,

looking like small shot. The axillary tumours pressed on the veins and the arms became œdematous, then the lower extremities were affected in the same manner. There was severe headache, and digestion was impaired, fats and meats could not be digested. For three days in the fifth month there were attacks of hæmatemesis. Palpation of the epigastrium was so painful that the level of the fundus could not be accurately defined. Yet at the same time there was no recurrence in the cicatrix of the tumour removed from the epigastrium. The urine was free from albumen. Cachexia became extreme, yet notwithstanding the desperate condition of the patient, pregnancy advanced quite normally. The fundus rose steadily to the normal level. At the beginning of the ninth month labour was successfully induced. A hot water injection was thrown up. The breech presented. Within fourteen hours a child weighing 4½ lbs. was delivered. It was fed from the bottle. On the fourth day its temperature rose to 100°, on the eleventh it succumbed to an attack of gastro-enteritis. Melanogen had been detected in the urine of the mother during gestation. None could be found in the child's urine. The induction of labour afforded the patient no relief. There was no local puerperal complication, but the pulse was 120 and the temperature about 100° for several days. On the twenty-first day she died in a condition of extreme malignant cachexia. A.D.

Technique of Rapid Dilatation of the Cervix.

Herz (*Zent. f. Gynäk.*, Nr. 32, 1912) believes that in a case where emptying of the uterine contents is necessary in the first few weeks of pregnancy, such as acute tubercular disease of the lungs, neither anterior hysterotomy nor dilatation with the Hegar's dilators is advisable. Both require general narcosis and are associated with considerable danger in a patient gravely ill. The method Herz recommends is as follows:—The cervix is anæsthetised with a 2 per cent. novo-cocain solution. This is made up in ampoules containing 1 ccm. physiological sodium chloride solution, ·02 g. novo-cocain + ·00013 g. suprarenin. The contents of two ampoules are injected into the portio in four places all round. After 10 or 15 minutes the dilatation is carried out with the Sims' dilator. The advantages of the Sims' instrument are: (1) equal dilatation and small risk of laceration, (2) the presence of the shoulder which prevents slipping with accidental rupture of the soft uterus, (3) the arrangement and mode of separation of the blades produces the greatest opening out at the internal os, and (4) the dilatation can be carried out with the one instrument. J.Y.

Hysterotomy.

John B. Deaver (*Journ. Amer. Med. Assoc.*, July 13, 1912, vol. lix, p. 91). Deaver was one of the first men to perform Cæsarean section for placenta prævia, and is a firm advocate for this procedure. He has endeavoured to extend the field for this operation by including as indications for it, certain cases of pregnancy, toxæmia, and retention of the placenta. The difficulty after opening the abdomen of distinguishing between a soft symmetrical myomatous uterus and a pregnant uterus is discussed and the use of hysterotomy in such cases is emphasized. The operation is also advocated in cases of bleeding from the uterus when there is a question of carcinoma of the body, and may then be used partly for diagnostic purposes and the condition dealt with conservatively if possible; for instance it is easy to remove small bleeding submucous fibroids in this way. The chief contra-indication to the operation is infection of the uterine cavity. C.N.L.